

OUR
FOOD SUPPLY
PERILS AND REMEDIES

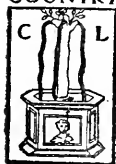
CHRISTOPHER TURNOR



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COUNTRY



LIFE

OUR FOOD SUPPLY
PERILS AND REMEDIES

THE INCREASED PRODUCTIVITY SERIES

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OUR FOOD SUPPLY
PERILS AND REMEDIES

BY
CHRISTOPHER TURNOR

AUTHOR OF "LAND PROBLEMS AND NATIONAL WELFARE."

WITH A FOREWORD BY THE
HON. EDWARD STRUTT

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To

A FRIEND OF MANY YEARS

TO ONE WHO THINKS OUT THE GREAT PROBLEMS OF THE LAND

TO ONE WHO LOVES HIS COUNTRY

TO ONE WHO PUTS PATRIOTISM BEFORE PARTY

TO

CHARLES BATHURST, M.P.

THIS LITTLE BOOK IS

DEDICATED

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FOREWORD

MR. CHRISTOPHER TURNOR, as a practical agriculturist, has presented in the following pages important facts and figures relating to the present condition of Agricultural England. They are, I think, valuable and suggestive to every agriculturist, and not the least so to those who may not be willing to go so far as the author in his conclusions. The issues raised in his book are more comprehensive and far-reaching than questions which merely affect production. The greatness of England was founded in the past upon the sturdiness and resourcefulness of her rural population, and these in turn were largely due to the variety and extent of the arable cultivation of her fields and to the home production of her people's food. But the growing depopulation of her countryside and the ever-increasing area of her grass land are matters of the gravest concern to all who consider the destinies of the nation.

Foreword

Mr. Turnor, in summing up his carefully assembled data, has done well to give expression to conclusions which may be slow in reaching the minds and consciences of a traditionally conservative people, but the truth of which will without doubt ultimately—it is to be hoped not too late—become patent both to British agriculturists and British statesmen.

EDWARD STRUTT.

WHITELANDS,

ESSEX, *January*, 1916.

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OUR FOOD SUPPLY: PERILS AND REMEDIES.

CHAPTER I

Present and Suggested Sources of Food Supply

“Better business, better farming, better living.”—SIR
HORACE PLUNKETT.

So many good qualities of heart are possessed by the English nation that one may hope that these will outweigh certain failings in other directions. If, as Herbert Spencer said, the aim of education is to produce people who think, and think correctly, then our system of education can hardly be described as fully successful. The Englishman is not fond of thinking; nor are our politicians fond of thinking. For the solving of problems it is necessary to take thought, and to understand a problem rightly it is necessary to consider not only one part of it, but the whole, and the whole in relation to other problems—but we

Present and Suggested Sources

have not liked problems and have put them far from us. Sooner or later every nation is forced to consider problems. The longer these are postponed the more difficult as a rule do they become. Years ago other European countries and the governments of our own Dominions began to turn their serious attention to the Problem of the Land; here we have hardly yet begun to do so. Not only do we prefer not to think out problems, but when we are forced to make the attempt it is often rendered futile because, also from disinclination to think, we are a one-idea-at-a-time people. So that if an important question is taken up, its proportions are lost sight of and its relation to other problems.

Our politicians are largely to blame for this, for they rarely try to educate the electorate, or to induce them to face the problem to be solved from the national point of view. On the contrary, wretched party considerations intrude themselves, and the politicians think only in terms of votes.

One obsession, which has maintained for many years, is the "Blue Water policy."

The Blue Water Policy

The Navy was to do everything. Practically no Army was necessary. So strong was the influence of this idea that our Government understanding with the French was for an expeditionary force of 100,000 men in the case of an European War. The French Government had doubtless realized that it would be useless to ask for more.

It is strange that any one with a knowledge of history should seriously have believed that an expeditionary force of 100,000 men would suffice when the great war came upon us. A great Navy is undoubtedly our first essential, but a little correct thinking might have shown that a great European war must be fought out on land, and that from every point of view our policy was to be in a position to send with the least possible delay an expeditionary force, say, of half a million men.

Again, the Blue Water policy is a dangerous one in regard to the attitude of the nation towards the sources of our food supply.

Most Britons have said and even still say, "The Navy will keep the sea routes open.

Present and Suggested Sources

Why bother about our food supply?" But the question is not so simple, and it would be wise to bestow careful thought upon it; and conditions created by the war already accentuate the need for careful thought.

In thinking out measures which will increase the amount of our home supplies, the permanent development of agriculture must be the aim. Attempts to increase, hastily and temporarily, the production of the soil must be ineffective and can easily be actually harmful. We must get to the root of the matter. Present conditions affecting agriculture are unsound and unsatisfactory; better ones must be created.

It is in the first place a business question. If the farmer is to produce a great deal more than he does at present, he must be made more sure of his profits, he must be enabled to increase his lawful profits; then he will be willing to improve his methods, and to put more capital, labour, and care into the cultivation of the soil. Sir Horace Plunkett's phrase, "Better business, better farming, better living," puts it in a nutshell.

For many years the tendency has been to

Grass and Arable

import more and more food, while our home-grown supply tends to decrease. During the past forty years many millions of acres of English land have been laid down to grass, and the consequent loss of arable land has not been made up for by the increased head of stock. Taking the whole production of the soil of the United Kingdom, this is undoubtedly decreasing in spite of the fact that during the past seven or eight years the prices of agricultural commodities have been good. This decrease in the whole production would be more apparent, and very much more striking, if our statistics showed separately the local increase in the specialized production of fruit, vegetables, etc., in such districts as Evesham and Wisbech.

It is a very serious fact that while science has provided the means for materially increasing the productivity of the soil, the English agriculturist, far from making use of them, has allowed the production of his land to diminish. During the past ten years a striking increase has been effected in Denmark in the yield per acre, yet the average prices for agricultural produce in that country

Present and Suggested Sources

range lower than they do in the United Kingdom. In the case of wheat, this increase in the yield per acre amounts to no less than 25 per cent. Formerly the average wheat production of Denmark was thirty bushels per acre. To-day it is forty bushels per acre. Incidentally this is some 25 per cent. higher than our average wheat production, which in most years stands at thirty-one bushels per acre. In Holland and Belgium the yield per acre for cereals is also 25 per cent. higher than our yield.

TABLE I.

COMPARATIVE TABLE OF PRODUCTION OF CEREALS AND POTATOES IN THE UNITED KINGDOM AND IN GERMANY FOR THE LAST TWENTY YEARS.

United Kingdom.			Germany.	
	In 1893. Qrs.	In 1913. Qrs.	In 1893. Qrs.	In 1913. Qrs.
Wheat . .	7,597,000	7,175,000	14,523,000	20,023,000
Barley . .	9,617,000	7,276,000	13,338,000	19,186,000
Oats . .	21,023,000	20,600,000	33,505,000	60,187,000
Rye . .	—	—	37,378,000	60,289,000
Totals .	38,237,000	35,051,000	98,744,000	159,685,000
	Tons.	Tons.	Tons.	Tons.
Potatoes .	5,634,000	5,726,000	27,539,000	49,403,000

We must realize then that while the yield

Production and Consumption

of agricultural land is going up in other countries, it is actually going down in the United Kingdom. In round numbers, our consumption of food is four hundred million pounds' worth grown in temperate zones at home and overseas, and some sixty million pounds' worth imported from tropical countries. Of the four hundred million pounds' worth one-half is produced in the United Kingdom ; but of wheat we produce at home only one-fifth of the total amount consumed. Of meat we produce 60 per cent. of the total, and of the other 40 per cent. four-fifths come from the Argentine, where the meat trade is largely controlled by the great Armour Company of Chicago. Much more meat could be produced in England, and what has to be imported should come from our colonies.

All the food we consume could and should be grown within the Empire itself ; for it is a great danger for a country to depend largely upon sources of food supply over which it has no control, especially when these are remote and involve a long sea transit. No man can say with certainty that no

Present and Suggested Sources

submarine or airship will be devised capable of seriously interrupting our food supply. At all events it is better to have more than one string to one's bow. Clearly, if it is possible to develop a source of food supply entirely under the control of the Home Government and obviating the long sea transit, this should be done, not only for reasons of defence but also for reasons of economy.

In a great war that nation is economically the most sound which is producing within its own borders the bulk of its requirements. As much gold as possible should be kept in a country, and here we compare unfavourably with the other belligerent nations. In times of peace the food imported into this country was paid for either by the export of manufactured articles or by the profits from our shipping—we were practically the carriers of the world—or else by a certain proportion of the imported food representing interest upon capital invested in foreign countries. Even so this process was economically unsound, when the food could have been produced in the United Kingdom had the capital been

Home Development

used in developing our own land instead of the land of foreign countries.

It is a serious fact that we have now to pay in actual cash for a large proportion of the food we import, and if the war continues for any length of time, this payment in cash will become an increasingly serious drain upon our national resources. For this reason it is incumbent upon every family in the United Kingdom to practise rigid economy, and to reduce to a minimum the consumption of imported food. Another lesson that the war is teaching us is that, though we may retain complete command of the sea, the Government has to requisition so large a number of ships that the carrying trade is seriously hampered, and the cost of carrying is consequently raised.

It is strange that English capitalists have not yet realized what an excellent investment our agricultural industry affords; though they are quite ready to put up money for agricultural developments in other countries. Although it would be undesirable to see too much land in the hands of agricultural development companies, a few such

Present and Suggested Sources

demonstrations would be most valuable. Their book-keeping would be above reproach, which is more than can be said of the book-keeping of the majority of farmers, and consequently valuable data would be obtained. Though the landowner gets a very small rate of interest in the form of rent on the capital represented by his land, the skilled and trained cultivator can and does obtain anything up to 17 per cent. on his working capital, after paying rental, charge of supervision, and all other expenses. In spite of this, and though many of our urban industries are over-capitalized to such a degree that they yield a very small interest, our primary industry is starved for want of the necessary capital. Capital invested at home is capital used to the best advantage. It is safer than capital invested in a foreign country with which we may one day be at war; and it is employing English labour, instead of helping foreign labourers, often working at a sweated wage, to compete with us in our home market.

During the past forty years the actual value of our agricultural land has gone down,

Need of Credit Banks

and the working capital of the industry has shrunk. If the industry is to develop as it should, this loss of working capital must be made good ; so it is clear that many hundreds of millions of pounds could be profitably employed in developing our agriculture. One of the quickest ways of increasing the working capital employed in agriculture would be by establishing a large system of credit banks, or societies for advancing money to farmers. The turnover of the Raffeisen banks in Germany is no less than £300,000,000 a year. But in this country we are deplorably slow in devising the machinery required to give the farmer that access to capital which is the first essential in land development. The Small Holdings Act of 1908 provided for the creation of a system of agricultural credit, but practically nothing has been done.

The question that we have to face is can we, or can we not, produce the bulk of the food we consume within the United Kingdom? There are still some people who feel that to produce another £100,000,000 worth of food at home would

Present and Suggested Sources

upset the interchange of commodities with foreign countries; that we must import food in order to keep our factories busy. Was ever a fallacy more apparent? The £100,000,000 worth of food if produced at home would still be paid for by the products of our factories and our whole home market would gain on the transaction. But most people will agree that it would be desirable if possible to produce at home the bulk of food now imported. The question is of such importance that it is worthy of the closest study. Yet, curiously enough, this problem has never received really serious attention. The Commission appointed some years ago to consider our food supply in time of war, considered many ways of guaranteeing our food supply. The building of great granaries was suggested—and it might be advisable to develop to a certain extent a system of granaries—but the primary and obvious question, “Could our land produce enough wheat to make us more or less independent of a sea-borne supply?” was never discussed at all.

We are now paying the penalty for neglect-

In Times of War

ing our agriculture during the past sixty or seventy years. Failing to recognize the fact that land is a nation's greatest asset, we have been content to drift along, leaving agrarian conditions in an admittedly unsatisfactory state. Providence has been merciful to us, or at this moment we might be suffering from the effects of a serious interruption of our food supply. Germany never really believed that we should go to war in 1914. Had she believed it, it is inconceivable that she would have allowed us to bottle up her navy as we have done. With all her cruisers—instead of only seven—on the high seas, she could have caused severe damage to our shipping before our navy could prevent it. As things are, we may yet have to suffer considerable inconvenience from interruption of our food supply; but it should not be necessary to adduce these arguments in favour of putting our land to better use. A properly instructed public opinion should demand that our land be no longer wasted, that it should produce all that it is potentially capable of giving to the nation, and that it should employ the largest possible number of men. Such a

Present and Suggested Sources

public opinion would insist upon the creation of the necessary conditions to secure this end. The Empire cannot remain sound and satisfactory if this problem is not considered, and if wise measures for the development of our land resources are not devised. Surely, it cannot be widely recognized that with an Empire embracing one quarter of the land surface of the globe, we have a *white* agricultural population living on and by the land, considerably smaller than the agricultural population of European Germany. The following tables will show what are the present conditions in regard to population, production, and consumption.

TABLE II.

COMPARISON OF THE AGRICULTURAL POPULATION IN THE BRITISH EMPIRE AND IN EUROPEAN GERMANY, INCLUDING MEN, WOMEN, AND CHILDREN, LIVING ON AND BY THE LAND.

	British Empire.	European Germany.
United Kingdom . . .	8,000,000	
Canada	4,000,000	
South Africa	300,000	
Australia	800,000	
New Zealand	300,000	20,000,000
Total	13,400,000	20,000,000

Grass and Arable

The following tables will show :

- (1) That the percentage of arable land in the United Kingdom is lower than in any other European country except Holland.
- (2) That in spite of the large predominance of grass land, the United Kingdom does not rank first in the head of live stock carried to the acre.

The comparison in Table III. between three main agricultural divisions of England shows that the grass land district, A, carries 7 head of stock more to the 100 acres than the arable district, B, but that another grass land district, C, shows the record for the United Kingdom, with $36\frac{1}{2}$ beasts to the 100 acres. In this case the high head of stock per 100 acres is undoubtedly largely due to its being a district of small farms, many of which are very well managed, in fact it is an example of "intensive grass farming," if the term may be used, and yet even here the head of stock kept is less per 100 acres than in Belgium; also taking the division, B, which is the main arable district of the United Kingdom, only $21\frac{1}{3}$ head of stock

Present and Suggested Sources

and $7\frac{3}{4}$ pigs to the 100 acres are kept as against 32 in Denmark and 21 pigs.

It is clear therefore that not only can a larger head of stock be kept on arable land than we keep at present, but that in several countries where arable land dominates the head of stock is higher than it is in our *best* grass district.

For the sake of simplicity sheep are translated into terms of "beast," allowing 8 sheep as equivalent to one beast.

TABLE III.

A.

SALOP, WORCESTERSHIRE, GLOUCESTERSHIRE,
WILTSHIRE, MONMOUTH, HEREFORD.

	Acreage.	Head of stock (cattle and sheep) per 100 acres.
Arable . . .	997,436	
Grass . . .	<u>2,147,677</u>	$28\frac{1}{3}$
Total . . .	3,145,113	

B.

NORFOLK, LINCOLN, YORK.

	Acreage.	Head of stock per 100 acres.
Arable . . .	2,222,122	
Grass . . .	<u>1,041,520</u>	$21\frac{1}{3}$
Total . . .	3,263,642	

NOTE.—It must be remembered that the official returns are taken in June at a moment most favourable to grass land, when it is carrying its maximum head of stock.

Comparisons of Stock

C.

CUMBERLAND, WESTMORLAND, LANCASHIRE,
CHESHIRE, DERBY, STAFFORD.

	Acreage.	Head of stock per 100 acres.
Arable . . .	887,901	
Grass . . .	2,308,786	36½
Total . . .	3,196,687	

TABLE IV.

COMPARISON WITH CERTAIN FOREIGN COUNTRIES OF PERCENTAGE OF GRASS AND ARABLE LAND AND THE HEAD OF STOCK PER 100 ACRES.

	Total area acres.	Percent- age in grass.	Percent- age of arable.	Head of live stock per 100 acres.		
				Beasts, including sheep.	Pigs.	Cows (included also under beasts).
	millions.					
United Kingdom	47	58½	41½	31	8	9
France . . .	90	27½	72½	19	7½	8½
Germany. . .	78½	23	77	30	33	14
Netherlands. .	5½	60	40	40	25	20
Belgium . . .	4½	27	73	40	31	21
Denmark . . .	6½	12	88	32	21	19

NOTE.—In the case of Holland it must be remembered that it has a large area of land lying below the sea-level.

Present and Suggested Sources

TABLE V.

A. Consumption per Head of the Chief Articles of Food in England, Germany, and France.

	Lbs. per head per annum.		
	England.	Germany.	France.
Wheat	354	155	463
Rye	6	284	67
Beans and Peas . .	34	23	91
Barley	156	131	58
Oats	201	205	229
Potatoes	291	1018	568
Meat	171	99	78

B. Consumption of Fresh Milk.

	Gallons per head per annum.
Group (1) Labourers, Artisans, Mechanics .	5
„ (2) Lower Middle Class	12
„ (3) Middle Class	25
„ (4) Upper Class	31

The consumption of milk in Group (1) and (2) is far less than it is for corresponding groups in continental countries.

C. Consumption of Milk in Form of Cheese.

	Lbs. per head per annum.
Group (1) { Labourers	9
{ Artisans, Mechanics	11
„ (2) Lower Middle Class	10
„ (3) Middle Class	8½
„ (4) Upper Class	10½

Tables of Consumption

D. Consumption of Milk in Form of Butter.

	Lbs. per head per annum.
Group (1) Labourers, Artisans, Mechanics	15
„ (2) Lower Middle Class	23
„ (3) Middle Class	29
„ (4) Upper Class	41

In Groups (1) and (2) consumption is considerably less than in continental countries.

E. Average Yearly Consumption of Meat.

	Lbs. per head per annum.	per week.
Group (1) Artisans, Mechanics, and Labourers }	107	2·06
„ (2) Lower Middle Class	122	2·35
„ (3) Middle Class	182	3·50
„ (4) Upper Class	300	5·77

The great difference between the consumption of meat in Groups (1) and (2) is most striking.

TABLE VI.

PERCENTAGE OF HOME-GROWN CEREALS TO TOTAL
AMOUNT CONSUMED.

	Per cent.
Wheat	19
Oats	75
Barley	55

Of potatoes we grow practically all that we normally require.

Present and Suggested Sources

TABLE VII.

SHOWING THE PRESENT SOURCES FROM WHICH COME THE
MAIN ARTICLES OF FOOD.

1913.

	Imports, Foreign.	Imports, Colonial.	Totals.
	£	£	£
1. Butter. . . .	19,512,803	4,570,855	24,083,658
2. Cheese	1,286,372	5,748,667	7,035,039
3. Milk	2,187,057	32,116	2,219,173
4. Eggs	9,588,653	1,949	9,590,602
5. Poultry	989,280	3,183	992,463
6. Vegetables	4,322,181	1,169,932	5,492,113
7. Fruit	3,103,266	1,288,832	4,392,098
8. Margarine	3,917,596	105	3,917,701
9. Meat	41,390,387	13,918,971	55,309,358
10. Grain and Flour.	55,286,772	30,207,856	85,494,628
	141,584,367	56,942,466	198,526,833

NOTE.—Such agricultural imports as Wool, Tallow, Hides, etc., amounting to £56,100,153, are not included in the above table.

It has been shown that if the average yield of our foodstuffs from the land were raised from £4 to about £8 the increased production would reach the huge figure of £200,000,000, or in other words it would equal the total amount paid for imported foodstuffs.

Need to Increase Yield

For the nation to be entirely self-supporting is a counsel of perfection—it is the goal to aim at, but one which will take some time to reach. But granted that the right measures are taken we should very soon be able to increase our home-grown supplies, as shown in the three following tables.

TABLE VIII.

ARTICLES NOW IMPORTED WHICH SHOULD BE
GROWN AT HOME.

	£	
Cheese . . .	7,035,039	
Eggs . . .	9,590,602	
Poultry . . .	992,463	
Vegetables . . .	5,492,113	
Fruit . . .	4,392,098	(excluding tropical)
	£27,502,315	

Eventually, when the head of cows has doubled and butter factories have been erected throughout the country, the bulk of imported butter might be produced at home. At present it pays best to sell milk either in the form of cheese or as fresh milk.

Present and Suggested Sources

TABLE IX.

LIVE STOCK—SUGGESTED INCREASE.

Actual number of cows, beasts, sheep, and pigs in United Kingdom.	Millions.	Present totals. Millions.	Suggested increase. Millions.	Revised totals. Millions.	Head of stock per 100 acres as revised.
Cows	4½	15½	1½	6	19
Beasts	7½		2	9½	
Sheep (in terms of beasts)	3½		—	3½	
Pigs	4	4	4	8	17

N.B.—Even under this arrangement the total head of stock (cows, beasts, sheep, and pigs) would not be quite as high as in some continental countries.

Not only would the suggested increase in the number of cows go towards providing increased home production of cheese, but the average milk yield per cow should be increased by some 40 per cent.

The increase of 2 millions in the head of beasts would provide an extra amount of home-grown meat about equivalent to the amount now imported from *foreign* countries.

Possible Increases

TABLE X.
ARABLE CROPS.

The figures in this table are taken from Mr. C. Fielding's calculations, which he worked out to show that by increasing the arable land by 5 million acres, and altering the cropping, it would be possible to produce at home all cereals required by human beings, and all grain, roots, and fodder required for the present head of live stock in the *United Kingdom*.

Crop.	Present acreage. (1913.)	Suggested acreage.	Production at present. Average tons.	Present con- sumption for humans and animals.
Wheat . . .	1,791,569	8,000,000	6,900,000	—
Of which—				
Flour . . .	—	—	4,830,000	—
Bran, Middlings, } and other offal }	—	—	2,070,000	2,524,000
Straw . . .	—	—	12,000,000	11,986,000
Barley, Beans, and } Peas . . . }	2,373,068	4,000,000	—	—
Grain . . .	—	—	1,950,000	1,956,000
Straw . . .	—	—	5,000,000	5,003,500
Oats . . .	3,983,448	5,000,000	—	—
Grain . . .	—	—	3,430,000	3,449,000
Straw . . .	—	—	6,250,000	6,265,500
Potatoes . . .	1,184,857	1,000,000	6,000,000	—
Turnips . . .	1,770,079	2,000,000	30,000,000	29,591,000
Mangolds . . .	501,033	1,000,000	25,000,000	25,095,000
Clover . . .	6,643,146	3,000,000	5,250,000	3,416,000
Other crops . .	788,044	—	—	—
Bare fallow . .	396,472	—	—	—
Total . . .	19,431,716	24,000,000		—

N.B.—Even with 5 million acres added to the arable land of the United Kingdom the percentage of arable would still be low. Mr. Fielding's figures are important in that they budget supply and demand, and show that on this basis we would be nearly self-contained. Of course such cattle foods as maize and cake would still have to be imported. But in regard to the profitable keeping of stock the axiom for the farm, "produce the maximum of home-grown food," is equally the axiom for the nation.

Present and Suggested Sources

TABLE XI.

SUMMARY OF TABLES VIII., IX., AND X.

Showing increased production of home-grown foodstuffs in pounds sterling.

Table VIII.	£	£
Cheese, eggs, etc.	27,502,315	—
Eventual increase in butter	10,000,000	37,502,315
Table IX.		
Meat from foreign countries	41,390,387	41,390,387
Table X.		
Grain and flour imported from foreign countries and the colonies	67,494,628	67,494,628*
Total		£146,387,330

* Excluding £18,000,000 worth of maize, rice, etc. This increase in home-grown food would, in the first place, displace the imports from foreign countries, except in the case of grain. In this case it is so important to grow here the maximum possible that this must be the first consideration. But if the sources of supply were carefully reorganized the decrease in this direction could be more than made good by importing from British possessions all the maize, rice, and foods grown in tropical countries, which at the present moment come from without the Empire.

The head of sheep in this country is larger than in any other European country, and it is perhaps in our sheep farming that we have reached the highest average degree of skill and science, but though this is so, large areas of grass land now carry a few sheep,

Causes of Small Yield

which, under other methods of farming, could be put to far better use from the national point of view.

In Table X. Mr. Fielding shows how the land of the United Kingdom might supply the nation with a vastly greater amount of cereals than at present; and Tables VIII. and IX. show how much greater might be the production of fruit, vegetables, poultry, and dairy products, and how the head of live stock might be increased. It will probably be asked: "If the land could do all this, why is it not doing it? If it were really to the advantage of the farmer to increase his production he would do so!"

The three main reasons why the land has not been put to proper use are—

- (1) The conditions affecting the agricultural industry in the United Kingdom have been in the past more unsatisfactory than those existing in any other country. Easy access to capital has been denied to the farmer. At present it is harder for him than for any other section of the industrial community to borrow money. Railway rates in this

Present and Suggested Sources

country are higher than in any other. Co-operation, *i.e.* collective selling and buying, is less developed here than in most of the countries of Europe, yet this is a most important factor in success, especially in the case of the smaller farmers. In agricultural education we fall far behind continental countries. It is owing to the work of the agronomer, or agricultural organizing instructor, that the agricultural industry in Belgium and Denmark, for instance, has reached its present flourishing condition. The interests of agriculturists have been here so systematically ignored that the astonishing thing is that the English farmer has any spirit left in him.

- (2) In regard to working capital English farmers are most seriously undercapitalized. In the good old days it was required of tenants to have working capital to the amount of £10 per acre, but the period of agricultural depression greatly reduced this amount until to-day it stands at about £7 per acre. This does not compare favourably with other

The Farmers' Handicaps

countries, where from £15 to £20 per acre is the average working capital. The farmers are largely to blame for this state of things, because in general terms they are inclined to take farms too big for their available capital. If farmers thoroughly understood the potential productivity of the soil they would not do this. They would realize that not only from the national point of view, but in their own interest, it is far better to take, say, a two-hundred-acre farm for which they would have a high rate of working capital per acre, rather than a four-hundred-acre farm which, from a financial point of view, they are not properly equipped to deal with.

- (3) The third reason is practically a corollary of the second, and that is the dependence of the English farmer upon permanent grass. In no other country of Europe is the proportion of grass land to arable land so high. In no other country does the farmer trust so entirely to grass. In England if a dairy farm is mentioned, it is at once assumed

Present and Suggested Sources

that a grass farm is meant. Yet in Denmark, the greatest dairy country in the world, there is practically no permanent grass whatsoever.

These, in brief, are the reasons for the present condition of things. In the ensuing chapter we will consider where the present methods fail, and in Chap. III. what alterations should be made to secure the increase in production that is desirable.



CHAPTER II

Present Methods

A CLOSE examination of our present system is necessary before improvement can be suggested, and the following appear to be the chief defects in the existing agricultural methods.

A. Grass Land.

Far too large a proportion of our agricultural land is under grass. Table IV. shows that the proportion of grass to the total amount of land used for agricultural purposes, is far higher in the United Kingdom than in almost any European country.

Present Methods

TABLE XII.

COMPARISON BETWEEN GRASS AREA AND HEAD OF STOCK IN
THE UNITED KINGDOM AND GERMANY.

(Taken from Board of Agriculture statistics.)

CATTLE.

	United Kingdom. 1913.	Germany. 1912.
Acres under permanent grass	27,309,188	19,353,974
Less grass for hay (1912) .	6,678,642	14,623,682
Acres grazing land . .	20,630,546	4,730,292
Total horned cattle . . .	11,936,600	20,182,021
Horned cattle per acre grazing land	0.578	4.266

Over large areas of so-called grass land in the United Kingdom the grass is so bad that the term "land gone out of cultivation" might almost be used. Yet it is land that once produced good crops of cereals, and could do so again. There is grass land that is not producing more than 30s. or 40s. worth of food to the acre, which under the plough, and growing wheat, could produce £11 worth of food for the nation and a profit of anything up to £5 or £6 per acre for the farmer—this putting the price of

Grass *versus* Arable

wheat at 40s. per quarter, and the yield at five quarters to the acre. This is not theory, but a statement of what has been done in recent years by many who have ploughed up grass. It is not suggested that all the grass land in the country should be ploughed up, nor yet that the best grass land should be ploughed up—two conclusions at which many people irrationally arrive whenever the question of ploughing up grass land is mooted. It is only fair to the British farmer to recall the reasons which led to a large area of land being laid down to grass during the agricultural depression. The price of cereals fell to such a degree owing to the competition of cheap production on virgin soil, that the English farmer could no longer grow them at a profit. He lost confidence, and that sense of security which is necessary to stir men to sustained effort, and he felt that the cultivation of arable land would never again be remunerative; grass land was safer, as it did not demand so heavy an outlay of money or labour. Naturally the farmer turned his attention to the reducing of his working expenses, and laying down

Present Methods

fields to grass, or letting them fall down to that strange and mixed herbage of bad grasses and weeds still technically called grass, was obviously the easiest method.

But now conditions have changed. The area of virgin soil is being reduced, population in the New Countries is increasing, and the consumption of their own produce is increasing with it. Further, our farmers are now in a position to develop co-operation and to organize their industry, if only they will make the effort to do so—it is a truism that an organized industry can make head against competition where an unorganized one must fail completely. This fact was recognized in other countries as soon as the competition of the New Worlds began to make itself felt, and measures were taken which saved the agricultural industry from the depression it suffered here.

In those parts of the country where the rainfall is heavy grass is economic, but only so if properly treated. Even in the west and south of England, where owing to climatic conditions a large area under grass must be retained, it would be often better

Permanent Grass

to have a larger proportion of arable so as to produce more winter keep.

It is one of the most widespread fallacies that permanent grass is essential to dairy farming. Denmark, the greatest dairying country, has hardly any grass. Modern text-books on dairy farming point out that a larger head of cows can be kept on an arable farm, properly cropped, than on a grass farm of the same size, thus yielding a larger profit to the farmer. British agriculturists, however, have not fully realized this fact.

B. Stock.

The head of stock kept to the 100 acres is not at all as high as it might be. Statistics show a lower head of stock per 100 acres in the United Kingdom than in other European countries which possess less grass. The reason for this is that even on their large farms the cultivation is more intensive than in England, more fodder crops are grown, and these properly cultivated yield more per acre than permanent grass, which enables more stock to be summered. With

Present Methods

an increase of arable land more cereals are grown, and there is more straw—consequently more stock could be wintered than at present. The feeding of live stock in England is far from being scientific or economic, and a large saving could be effected in this direction.

C. The Milk Yield of our Cows.

The milk yield of our cows is altogether too low, and could be materially increased in the course of a few years if the right steps were taken. The cost of producing milk is often needlessly high owing to extravagant feeding.

D. Farmyard Manure.

There is very great waste in the present treatment of farmyard manure. In the good old days liquid manure tanks were much more common than they are to-day. Competent authorities estimate that one half of the value of our farmyard manure is lost through careless handling, and that this loss amounts to several millions sterling.

Causes of Waste

E. The Use of Artificial.

The use of artificial manure is still little understood by the average farmer, and far less is applied per acre than in the majority of continental countries. Ready mixed manures are still largely used by our farmers—these are always expensive and sometimes actually harmful. The farmer should buy his chemicals and make his own mixture.

E. Fallow and Poor Crops.

Bare fallow, save when absolutely necessary, is a cause of waste. Uncultivated headlands, uncleaned ditches, and hedgerows growing weeds, are causes of loss which are all too frequent. But most serious is the loss from poor crops, half crops of seeds, roots, corn—crops that are poor not because the land is inherently bad or the weather unduly hostile, but because the cultivation has been indifferent. The good farmer next door has good crops on similar soil. There is no doubt that turnips play too large a part in the farm cropping, and attempts are frequently made to grow them where the conditions are unsatisfactory, hence one

Present Methods

cause of failing crops. Cereal crops of 2 and 3 quarters to the acre do not pay the grower, yet such are to be found in most districts in close proximity to fields growing excellent crops. With proper cultivation and the right use of artificials no cereal crop in an ordinary year should be less than 4 quarters to the acre.

Waste in such directions often causes 25 per cent., if not more, of the area of a farm to be virtually unproductive, not paying the farmer for even the limited amount of cultivation he has bestowed upon it.

G. Rotation of Crops.

The average farmer still sticks too closely to the four-year rotation, which certainly played a great part in developing English agriculture a hundred years ago, but scientific discovery during the past fifty years has rendered the skilful farmer to a great extent independent of that time-honoured process. There is no reason why three or four white crops should not be grown in succession on the same land, provided that the land is clean, and that the farmer uses his artificials

Rotation of Crops

properly. The fourth crop will be just as good as the first. The present system of tenant right greatly hampers the farmer who wishes to resort to new methods of cropping. The Land Holdings Act of 1908 was designed to give the farmer freedom of cropping ; but it has not freed him from the requirement of the valuer that the farm when surrendered must be found to have been cultivated under the four-course system.

H. Treatment and Handling of Milk.

The general treatment and handling of milk is unsatisfactory, and far too large a proportion of the supply is utilized in making bad butter, which it does not pay to make.

I. Market Gardening.

Although in many parts of the country market gardening is very well done, there are few districts where the yield per acre equals that of the market gardens round Paris and in Flanders for example, and these are for the most part on poor light soils. There is therefore room for much development here in this type of cultivation.

Present Methods

J.⁴⁷ Pigs and Poultry.

The head of pigs and poultry is lower in the United Kingdom than in almost any country. Particularly in the case of poultry our farmers do not keep the number that they should. And more important still, their methods of handling poultry, in general terms, are not up to date or scientific.

K. The Landowner.

The foregoing criticisms more generally concern the tenant farmer. Now let us come to the landowner. Many estates, though they may be models of neatness and a delight to the eye, are run on such extravagant lines that, far from being examples of thrift and economy, they foster a tendency to extravagance in all living on and by the estate. We are forced to recognize that in the majority of cases, though there may be magnificent prize pedigree stock, the landowner's home farm is carried on at a loss. Nothing would help more to raise the whole standard of agriculture than for landowners to concentrate their attention on making

Landowners' Mistakes

their home farms demonstrations of good and profitable management. It is difficult to see how this can be done so long as poorly paid bailiffs are employed to look after a farm, say of 500 acres. A large Danish landowner once said: "The English are a strange people. Landowners farming perhaps 500 acres put in a bailiff to whom they pay £100 or £120 a year. Properly farmed 500 acres is a big business. I employ a man at £300 a year, but then my farm pays me a big profit per acre."

Case after case can be found in every country on the continent of landowners making £3 and £4 an acre from their farms in hand. This income is made up as follows :—

TABLE XIII.

	Per acre.
Rental (say)	30s.
Interest on working capital (5 per cent. interest on £15)	15s.
Net profit	<u>35s.</u>
Total	80s.

Naturally the last item varies with the land and the year, but a study of the farm

Present Methods

books shows how constant it is over a period of years. On an English home farm if the loss be put at £1 an acre it will not be over-stated. If English landowners would follow the continental example, every home farm would be a demonstration of what a farm ought to be. Demonstrations of this kind are much needed, and the book-keeping should be so correct that the records would give valuable data. The landowner also is greatly assisted thereby in dealing with his tenants. If a tenant complains that his land is poor, or so heavy that he cannot make a living out of it, the landowner can reply : "I am farming similar land to yours, and these are the results."

L. The Present System of Land Tenure.

In considering our present system of Land Tenure we cannot shut our eyes to many evils which have crept into it, and which are largely the result of the great agricultural depression. To begin with, take the proportion of owners of land to tenants, and we find that only 12 per cent. of the occupiers of agricultural land are owners ; 88 per cent.

Land Tenure

are tenants. This proportion is much lower than it used to be, and in no other country is it so low. In Denmark, the most flourishing agricultural country in the world, 88 per cent. of the occupiers of land own their holdings, and only 12 per cent. are tenants. Then under the present system, many farmers have come to trust too much to the landowner in times of trouble, instead of taking measures to meet their own difficulties. As in any other business so in the case of farming the cultivator ought to have a reserve fund to fall back upon when a bad year comes. Landowners have been doing more and more for the farmer in regard to the upkeep of the farm, and this again is not well. There is no doubt that our system of land tenure at the present time does not encourage self-reliance on the part of the farmer, or individual effort to keep his farm and buildings in a condition in which a man who takes pride in his work should wish to see them.

Again, the size of estates has tended to increase, and many landowners own more land than it is desirable from the national,

Present Methods

moral, and economic points of view for one man to hold. It is clear that the time has come for certain changes to be made in our system of land tenure. Sixty years ago in Denmark the ratio of tenants to owners was the same as it is here to-day, but gradually and wisely alterations were effected until a system meeting the needs of the times was evolved.

M. The Government.

For the last hundred years the Government of this country has not only systematically neglected the land and the cultivator, but in many cases has actually penalized the land. It has devised no sound system of land purchase ; it has done nothing to create a system of agricultural credit ; it has failed to create demonstration farms or to keep careful records ; it has done little to encourage co-operation ; it has left the farmer to battle against adverse transport difficulties ; it has done nothing to promote land settlement ; in short, it has done nothing to create conditions favourable to agriculture. Yet the Governments of nearly every other

Government Failings

country have given much attention to the creation of those conditions and have thus secured a flourishing agricultural industry. It may be a small point—but an instructive one—that the French Government has established an agricultural order of merit, which is conferred in consideration of distinguished agricultural service! Our Government has left the Board of Agriculture in a Peter Pan condition, and has denied to it the opportunity for that expansion which alone can fit it for the *rôle* which the Ministry of Agriculture should fill in developing the natural resources of the country.

CHAPTER III

New and Improved Methods

HAVING stated the defects in our present methods we can now turn to the constructive side, and suggest certain new methods, or alterations in our present methods, which would tend to improve agricultural conditions and to increase the yield per acre. If the proper measures are adopted, and if the proper conditions—conditions really favourable to the agricultural industry—are created, there is no reason why we should not raise our produce of £4 worth of food per acre to nearly £7 worth, as in Denmark. It really should reach £8 per acre. If this figure is reached, then the total production of the land of the United Kingdom will stand at £400,000,000 worth. The total national consumption of food grown in temperate zones is £400,000,000 worth, of which one

Increase of Arable

half is grown in the United Kingdom and one half comes from extraneous sources, so that if this increased yield per acre is achieved, the nation will be practically self-supporting. It is not suggested that we could all at once produce the whole of this extra amount of food, but it is well to remember that the land of the United Kingdom is *potentially* capable of producing it. Some will say that our climate is against us, but in Denmark they are producing nearly £7 worth of food per acre under climatic and soil conditions infinitely less favourable to agriculture. The question now follows, what changes in method are necessary to win this increased yield per acre?

A. Arable Land.

The big change to be effected in our system of farming is greatly to increase the area under the plough, and to lessen the amount of permanent grass. Arable land if properly handled produces more food per acre than does grass land, and it also employs many times the number of labourers

New and Improved Methods

—two facts of great importance from the national point of view.

The following table from *The New Statesman* shows the increase in the animal produce of arable land as compared with that of grass land of the same quality :—

TABLE XIV.

COMPARISON OF YIELDS OF GRASS AND ARABLE LAND.

	Meat.	Milk.
Yield per acre of grass land . .	200 lbs.	170 galls.
„ „ arable land . .	450 „	360 „ ¹

Further, arable land produces a larger margin of profit for the farmer.

Wheat is the “basic” crop in arable farming, and if the area of land under the plough is greatly increased, the amount of wheat grown must likewise increase. By careful cultivation the good farmer, *i.e.* one who produces over four quarters to the acre, can make wheat pay well even at 35s. a quarter, certainly at 40s. a quarter, and if the farmer could be certain that that price

¹ Speaking at the British Association at Manchester, Professor T. H. Middleton of the Board of Agriculture said, “A well-managed arable farm is shown to be capable of supplying about twenty-seven times as much human food as our poorest enclosed pastures, twice as much as rich pastures, and about one-half more than well-managed grass dairy land.”

Increase of Arable

would be maintained there is no doubt that much larger areas of wheat would be grown.

TABLE XV.

BUDGET FOR WHEAT GROWING PER ACRE.

<i>Expenditure.</i>	<i>£ s. d.</i>	<i>Receipts.</i>	<i>£ s. d.</i>
Cost of production ¹ and putting on market . . .	6 10 0	5 qrs. @ 35s.	8 15 0
Net profit . . .	3 15 0	Straw. . .	1 10 0
Total .	£10 5 0	Total .	£10 5 0

A new factor materially affecting wheat growing is the advent of new varieties of wheat, which on the one hand may increase the yield up to 50 per cent., and on the other provide a better milling wheat than the old varieties. In fact, some of the new varieties will make excellent flour without the addition of any extraneous wheat.

The following table gives the results achieved on certain arable farms. A German farm of 1000 acres is included for the sake of comparison.

¹ Including rent and rates.

New and Improved Methods

TABLE XVI.

A.—HERR SCHWABE'S FARM, GERMANY.

1062 ACRES. GROSS RECEIPTS.

Cropping.	Acres.	Yield.	Per acre.	Total.
		Tons. Qrs.	£ s. d.	£ s. d.
Wheat . . .	250	— 5'75	12 0 0	3,000 0 0
Sugar beet . .	250	13'0 —	16 4 0	4,050 0 0
Rye. . . .	175	— 8'5	10 0 0	1,750 0 0
Potatoes . . .	25	8'25 —	20 0 0	500 0 0
Oats	175	— 6'0	7 0 0	1,225 0 0
Fodder . . .	62	—	see stock	—
Total arable . .	937			
Grass land . .	125			
Total . . .	1062			10,525 0 0
<i>From Stock—</i>				
30 fattening beasts				600 0 0
600 fattening sheep				1,350 0 0
400 ewes with lambs (wool)				300 0 0
3,000 pigs				4,000 0 0
Gross total sales				£16,775 0 0

NOTE.—The prices are calculated at English and not German rates for the year 1911. There were also on the farm 25 horses, and 30 to 50 working oxen. Gross sales come out about £16 per acre. The 3,000 pigs include all pigs of every description that are bred on or pass through the farm during the year.

A German Comparison

B.—ENGLISH FARM OF 1000 ACRES.

GROSS RECEIPTS.

Cropping.	Acres.	Total.
Wheat	150	2,500
Oats	100	
Barley	120	
Roots	100	
Potatoes	40	800
Clover	60	150
Peas	30	200
Total arable	600	3,650
Grass	400	
Total	1000	
<i>From Stock—</i>		
Milk (240 cows)		4,700
Beasts		250
Pigs		250
Poultry		350
Gross total sales		£9,200

NOTE.—Much of the corn was consumed on the farm, and the returns from the grass and roots come into the receipts from stock. Gross sales just over £9 per acre.

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C.—ENGLISH FARM OF 500 ACRES.

GROSS SALE OF PRODUCE.

By sale of—	£	s.	d.
Corn	1,808	16	2
Hay and straw	117	1	3
Cattle	283	6	3
Milk	1,724	17	11
Pigs	190	17	6
Total	£4,124	19	1

This farm is nearly all arable, and was in a very bad condition. It is now yielding about £8 per acre ; a few years ago it did not yield £4 per acre.

But it must not be supposed that the arable farm is suitable only or even chiefly for producing cereals. Live stock can be raised just as effectively on arable farms as on grass farms if lucerne and other fodder crops are grown. Reference to tables Nos. III. and IV. shows the head of stock kept per 100 acres in “arable” and “grass” counties, and in the United Kingdom as compared with certain other countries. In no country but England could such a stupid controversy have been raised as that which has recently appeared in the press, “Should the United Kingdom produce more meat or more cereals ? for clearly it must be one *or*

the other," when it is really clear that it could and should be both !

Dairy farming on arable land, properly cropped, is most profitable. The farmer need not fear a continued drought ; he can keep his cow to every two acres, which is well above the English average, and yet steadily increase his output of cereals. The more cows, the more manure ; the more manure, the more straw and mangolds ; and the more straw and mangolds, the more cows—anything but a vicious circle !

In Denmark there are many cases of the ratio of one cow to 2 acres being exceeded, the record being fifty cows on 50 acres.

The crop of next importance to wheat is lucerne. If the development advocated here is to be carried out, a much larger portion of arable land than in the past will have to be under this crop. It is one of the mysteries of agriculture why this crop is not more extensively grown. It is not a new crop—it was grown in Great Britain by the Romans—and most farmers admit that it is a good crop, yet only a few thousand acres are under lucerne in the whole of the United

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Kingdom. In Appendix No. I. the case for lucerne is further developed. Sainfoin is an excellent substitute for lucerne on chalky down land.

B. Stock.

There is nothing that more astonishes visitors from other countries and from our Dominions than to see, in travelling through England, great stretches of grass land and the comparatively few head of stock grazing thereon. Many people say that because the area under grass has increased, the head of stock must also have increased. But alas ! the head of stock has not increased even to the extent of the accepted English ratio of one beast to every 3 acres. In feeding stock the object should be to feed as largely as possible on food grown upon the farm and to buy as little as possible in the way of concentrated food, such as cake, etc. ; this principle, however, is far from being universally understood.

C. The Milk Yield of our Cows.

It costs little more to feed a cow yielding 700 gallons of milk per annum than one

Milk Yield

yielding 300 or 400 gallons. The average yield in this country is about 400 gallons per annum, in Denmark it is about 700 gallons per annum. There is only one way of increasing the yield of our cows, and that is by establishing Pedigree Bull Societies and Milk Control Societies throughout the country. These societies keep a record of the milk yield of every cow entered upon their books, and also of the food consumed per cow, and how much it costs in terms per gallon. There are a few Milk Control Societies in England and Scotland which are doing good work. The Board of Agriculture publish a leaflet giving full information as to how to form such a society.

The following table, taken from one of the Milk Control Societies, shows how great is the variation in the cost of producing milk according to the method of feeding adopted. Even the minimum of $5\frac{1}{4}d.$ per gallon is capable of still further reduction.

TABLE XVI.

Maximum cost per gallon of milk	. . .	$8\frac{1}{2}d.$
Minimum " " "	. . .	$5\frac{1}{4}d.$
Average for the 18 farms under control	. . .	$6\frac{3}{4}d.$

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D. Farmyard Manure.

The first essential is a liquid manure tank. It is the liquid manure which contains most of the volatile ammonia which is so valuable, and which can be preserved only in an hermetically sealed tank. Therefore all farm buildings should have a system of drainage to lead the liquid manure to its place of storage.

In regard to the solids they should always be kept in a covered yard. Yorkshire board roofing is quite effective, and is the cheapest. Strictly speaking, there is no doubt that the most effective use of manure is not to store the solids at all, but to put them on the land each day, and plough in as soon as possible. This practice is in vogue on many large American dairy farms where the cows are stall fed throughout the year. The yield from manure so treated is greater than that from manure kept even in a covered yard, which in its turn is about twice as valuable as manure from an open yard. Where cattle are wintered in yards there should be a liquid manure tank somewhere about the middle of the yard, and from time to time

Farmyard Manure

the liquid should be pumped over the whole mass.

Perhaps the most wasteful practice of all is the common custom of leading the manure from the cow yard and making a heap in the field. It often stands for months in this heap, washed by every rain that falls until it becomes practically valueless. This method also entails two handlings of the manure when one would suffice. There is often great waste of straw on English farms, where the farmer trusts to the staw to absorb the liquid manure. Straw is much too valuable to be put to this use. There is also great waste in bedding with too much straw. The practice of feeding a large amount of cake for the increased value of the manure was given up some thirty years ago on the continent. But it still continues here, where the feeding of stock is, as a rule, extravagant. If this is pointed out to farmers they will say : " Yes, but we get the value back in the manure;" yet, as has been said, they treat the manure so badly that the best part of it is wasted, and their object is altogether defeated. In any case, this would

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be attained much more effectively by the proper use of chemicals.

E. Full and Proper Use of Artificial.

Nothing can be of greater importance than the proper and full use of artificials. If the cultivation of arable land is to be successful, even with much better treatment of farm-yard manure, far larger quantities of artificials must be used than in the past. About twenty shillings' worth per acre should be used throughout the farm, *i.e.* the bill for artificials on a two-hundred-acre arable farm would be £200. The smaller farmers particularly are in need of instruction in the proper use of artificials. It is of no use saying that the small farmer can learn from the large farmer, because as often as not he also is using artificials incorrectly. The instilling of knowledge of the practical use of artificials has been the work of the agricultural organizer in every other country, and it must be so here.

The following table shows the difference in the results obtained from using compound manures, and properly balanced dressings mixed at home by the farmer :—

TABLE XVIII.

SHOWING PROFIT AND LOSS RESULTING FROM THE USE OF ARTIFICIALS AND DEMONSTRATING THE PROPER AND IMPROPER USE THEREOF.

No. of Plot.	Manure used per acre.	Yield per acre.	Return on sales per acre, at 75s. ton.		Cost of manures per acre.		Net return per acre.		Profit or loss per acre due entirely to manures.	
			Ton. cwt. qrs.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	Profit.	Loss.
1	1 cwt. sulphate of ammonia	8 10 3	29 17 6	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	—
	1 " sulphate of potash . .									
	4 " superphosphate . .									
2	1 " sulphate of ammonia	8 8 2	29 9 9	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	—
	4 " superphosphate . .									
3	1½ " nitrate of soda . .	8 0 0	28 0 0	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	—
	1 " sulphate of potash . .									
	4 " superphosphate . .									
4	No Manure	5 18 0	20 13 0	£ s. d.	—	—	20 13 0	£ s. d.	—	—
5	"A" bought compound .	6 2 2	21 8 9	£ s. d.	1 19 0	1 19 0	19 9 9	£ s. d.	1 3 3	—
6	"B" compound. . . .	6 9 0	22 11 6	£ s. d.	1 19 6	1 19 6	20 12 0	£ s. d.	—	1 0
7	"C" compound	7 1 0	24 13 6	£ s. d.	2 0 6	2 0 6	22 13 0	£ s. d.	2 0 0	—

Scientific and properly balanced dressing.

"Cheap" compound bought ready mixed.

New and Improved Methods

If Professor Bottomley's discoveries can be applied on a commercial scale, there will be a complete revolution in our method of enriching the soil. If the Professor can make potatoes grow without potash it will be an achievement of the greatest national importance, for Germany possesses the main potash supply of the world.

F.Fallow.

Many farmers are giving up bare fallowing, but it is still too common. Of course there are cases where nothing short of a bare fallow will clean a field, but in general terms it should be possible to do all the cleaning when the land is under root crops. Much greater care should be taken to see that no portion of the land on a farm lies idle. There is no doubt that mangolds could be substituted with great advantage for turnips and swedes on land where these often fail. Mangolds are in every way a more profitable crop for cows, cattle, and sheep. If the ground is properly prepared mangolds afford one of the most certain crops, but the importance of proper treatment

Fallow and Rotation

is clearly demonstrated every year, when examples can be seen of first-class crops secured by the skilful farmer, while the unskilful farmer is obtaining only a poor crop—and this often in adjacent fields. Mangolds can be grown continuously in the same field for many years.

G. Rotation of Crops.

Given clean land and the full use of artificials, the farmer should be allowed to crop as he likes and to sell hay and straw when it is good business to do so. The one feature in rotation that still maintains is the proper use of leguminous plants. For it is by the proper use of lucerne, vetches, and clover that nitrogen can most cheaply be added to the soil. Once a farm is in proper condition there is every advantage in growing two, three, or even four white crops in succession. This practice largely increases the area under cereals, and also cheapens the production of corn. The root crop naturally remains the cleaning crop. If the land comes under roots every fifth year this should be sufficient. But when the

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farmer does break away from the four-year rotation the agent or owner must satisfy himself that the necessary amount of artificials is being used, or there will be danger of the land being let down.

H. Treatment and Handling of Milk.

Far more care than at present should be bestowed upon the actual handling of our milk. A large proportion of the infant mortality in our towns is due to the bad quality of the milk supplied. Far too large a proportion of the milk produced in this country goes into butter making. With organization much more of it should be available for the milk consumers in town and country, and also for making cheese. Milk turned into cheese pays the farmer nearly twice as much per gallon as milk turned into butter.

TABLE XIX.

BUTTER.

	<i>s.</i>	<i>d.</i>
8 galls. milk yield 2 lb. 10 oz. butter sold at 9 <i>d.</i> per lb.	2	0
8 galls. skim at, say, 3 <i>d.</i> per gall.	2	0
	<hr/>	
	4	0
	<hr/>	

Handling of Milk

CHEESE.

	<i>s.</i>	<i>d.</i>
8 galls. milk yield 8 cheeses, sold at 10 <i>d.</i> each .	6	8
8 galls. whey at, say, 1 <i>d.</i> per gall.	0	8
	<hr/>	<hr/>
	7	4
Extra profit of Cheese over Butter	3	4
	<hr/>	<hr/>

TABLE XX.

PRODUCTION OF MILK.

The total production of available milk in the United Kingdom is as follows:—

Consumed as milk	620,000,000 galls.
„ „ cheese	153,000,000 „
„ „ butter	944,000,000 „
„ „ condensed milk, etc.	6,000,000 „
	<hr/>
	1,723,000,000 „

From this table it will be seen that the larger amount of our milk goes in making butter. It is clear that a very much larger proportion should be devoted to making cheese, which is one of the most valuable of all articles of food, and this especially at a time like the present when it is essential for us to increase our home-produced food in every possible way.

If a great development in cheese-making

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is to take place the present methods of calf-feeding will have to be very much altered.

I. Fruit and Vegetables.

There is room for great development in the growing of fruit and vegetables, both in the area devoted thereto and in the yield per acre. In the case of some vegetables the supply practically equals the demand, and the increased cultivation of these vegetables should be avoided, but in general terms some £7,000,000 worth of fruit and vegetables now imported should be grown within the United Kingdom. Gluts in the fruit market, now so often a source of loss to the growers, are not really due to over-production, but rather to a want of organization of marketing conditions. In this connection also, subsidiary industries are much needed, such as fruit drying, bottling, etc.

In districts of small farms there ought to be a great development of hedgerow fruit trees. These are practically non-existent in this country, and yet abroad they prove a very important subsidiary source of revenue. Some districts in France have cherry trees

Pigs and Poultry

growing in splendid fields of corn, and the combined sales often reach £40 sterling per acre. There are many parts of this country well suited to fruit growing where it has not yet been attempted.

J. Pigs and Poultry.

Eggs and poultry are imported to the value of some £10,000,000 a year, and bacon to the value of £17,428,881. Again, the bulk of this could be produced within the country.

If co-operative bacon factories could be started, this would have a very steady effect on the price of pigs. One of the reasons why farmers do not go in for pigs more than they do is that the price so constantly fluctuates. One year pigs are profitable, the next year they are not; this depending largely on the price of meal. Pigs can be summered on lucerne with practically no extra food, and a great saving thus effected in the food bill. A large increase, to the value of many million pounds, could be obtained from pigs and poultry quicker than from any other branch of agriculture.

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K. The Landowner.

It is difficult to see how the desired development in English agriculture can take place unless landowners heartily and intelligently co-operate. One of the first steps to be taken is to run each and every estate as an industrial concern, to make as much money out of it as possible, and to see that the men who work on the estate give a full return for their wage. At present, particularly on large estates, there is no doubt that the estate staff do not put in the amount of work per day that they would have to do if working for any other than a landowner. Morally this is bad for the men; economically it is bad for the country. Again, in general terms, if landowners would satisfy themselves that all incoming tenants possessed working capital to the extent of £10 per acre, it would do much to raise the standard of cultivation, and taking all things into consideration this is now not an excessive sum to require. In the days of agricultural depression, and particularly in the case of large farms, landowners were often forced to allow one tenant to take

The Landowner's Part

several farms, but the time has come when this policy must be not only discontinued but reversed whenever possible. Wherever a tenant who holds several farms is not doing full justice to them, one farm should be taken away from him. The owner is quite able to do this on the ground of good estate management. It is also very undesirable for one man to hold several farms under different landowners. In the future landowners must make a great deal more out of their estates than they do at present, both by making their home farms pay well, and by charging the full rental for the land they let. Most of the agricultural land of England is under-rented, and low rental and low farming go hand in hand. If the landowner will make more out of his estate, and will run it successfully as a business, this will do more than anything else to improve the standard of cultivation. The business that is barely paying its way has a most depressing effect on all concerned in it, whereas nothing is more vitalizing and interesting than the business which is flourishing, and which is always on the upgrade.

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Continental landowners get far more net profit out of their estates than do English landowners, chiefly because they farm the greater part of their estates themselves, and so make not only rental but the tenant's profit as well. In the good old days it was generally assumed that a 10,000 acre estate gave the landowner an income of £10,000 a year to live on, but even then estates were mortgaged, and the accuracy of this estimate is doubtful. It is certainly very far from true to-day, and the net income the landowner now receives is so much reduced, that in the majority of cases it only represents a poor interest on the capital expended on the estate during the past fifty years. It does not represent *rental* for the land at all. This is a fact that urban socialists should realize if they wish to understand the problem of the land.*

* Attention is often drawn to the fact that to a comparatively small portion of the population £250,000,000 a year is paid in the form of rental from land, but no distinction is made between urban and rural landowners.

The agricultural landowners of Great Britain receive as *gross* rental under £40,000,000 a year, or a net rental of about £23,000,000.

Industrializing Estates

This condition of things could be altered if landowners as a body would make up their minds to industrialize their estates as landowners on the continent have done. The possible income to be derived from an agricultural estate is not at all understood by the average run of owners. An interesting book by the Duke of Bedford about a great estate shows that from 20,000 acres he received practically no income, and the writer knows a good many large estates of which the same can be said. This estate was at last sold and realized a sum which invested must give a considerable income. Of course the land in this case was very good, and had been let much below its value. Good land sells well and easily. With an estate of mostly poor land the result would be very different, though even in such a case the large landowner would as a rule benefit by the sale of some of his land. These uneconomic conditions cannot continue, and the operation of the laws of economy will probably be very much hastened by the effect of the war. The writer knows an estate in Denmark of 5000

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acres farmed entirely by the owner, upon which is a small sugar factory and a wood pulping mill with tar vats, and which gives the owner an income of £20,000 a year. The land is not one whit better than that of very many 5000 acre estates in England, which at the best yield the owner £2000 a year net income. There are also home examples of what management can do in the way of improving the financial condition of an estate. Unfortunately it is not possible to make these cases public. One case, however, may be cited, that of a large estate from which the owner derived no income whatever, but actually incurred a heavy loss. In a few years under new management, chiefly by saving the loss on farms in hand and by reducing needless expenditure on upkeep, the annual deficit was wiped out and new income created, altogether showing a difference of £9400 a year. In this connection the Duke of Marlborough is giving a valuable example. A few years ago he appointed a first-class agricultural expert to take charge of a large farm. This farm is being run on a strictly

Business Management

commercial basis, careful accounts are kept and audited, to which any one, genuinely interested, would be allowed access. The labourers are paid a higher rate of wages, and the labour bill has increased owing to more work being put into the land. The net income from the land has been raised and the total production of the farm shows a marked increase. If in the future landowners are to make as much as possible out of their estates they will have to train specifically for the work. They need not necessarily be practical farmers, but they must understand what the land is capable of doing. They must understand that the land can yield more than it does at present. People are only beginning to realize this point, which is really fundamental, and surely owners of land should become missionaries of everything that is soundly progressive. In this work of regeneration the land agent also must play his full part; too often the agent wishes things to remain in *statu quo*—so as to avoid trouble and responsibility. Every agent should be a first-class farmer, so that when a farm in poor condition comes on hand, he

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can take it over, work it profitably, and improve its condition. That this can be done is demonstrated conclusively by Mr. Edward Strutt's balance sheets, which cover a range of twenty-one years.

To sum up :—

- (1) Landowners should make their home farms demonstrations of profitable farming.
- (2) Landowners should in every way encourage their tenants to adopt modern methods and remove any hampering restrictions contained in their leases. It is particularly important during this present war for farmers to be given every encouragement to increase the yield of the land they farm. If the Government does not see fit to give the needed encouragement, then landowners should take the initiative as far as possible.
- (3) Landowners should be much more severe with bad farmers than in the past. It is easy to dismiss farmers for reasons of good estate management. Although unpleasant it is the right

Treatment of Estates

thing to do from the national point of view, and often for the good of the farmer himself. If a man is not master of his farm he will let it down so seriously that it will take years to recover; this injurious process should be nipped in the bud.

- (4) Landowners should divide up their larger farms wherever possible, and above all not let tenants add farm to farm. It is a great temptation to let a really good farmer, holding say 400 acres, take a neighbouring farm of 100 acres when it comes on hand, but the temptation should be resisted.
- (5) Woodlands should be managed on a commercial basis, and a much larger amount of timber per acre should be produced. In foreign forestry as compared with ours at least double the number of trees are grown per acre, and if a really effective organization for selling timber could be created a fair profit from woodlands should be possible even in England.
- (6) There is no doubt that the size of the

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great estates will have to be reduced. Every facility should be given to the farmers to purchase their holdings rather than allow land speculators to come in.

- (7) Landowners should encourage their sons while at school and college to take up courses of instruction that will be of practical use to them in the management of land.

Great changes must come over the country as a result of this war. It is impossible to think that we shall fall back into the same old grooves—indeed, we should not even wish to do so. Every citizen must be as efficient as possible in his own sphere, and if landowners wish to retain any influence in future land reforms they must show that they are worthy of leadership. They must show that they understand the part that land must play in national development and in social reform. They must show that they understand the aspirations of the labourer, and are willing to help him to better his position.

Partnership Farming

L. The Present System of Land Tenure.

The abolition of tenancy is not for one moment suggested, but it is clear that certain modifications of our present system of land tenure would greatly benefit the country and the agricultural industry. The percentage of men who own their holdings has been decreasing, largely because rich people have bought up land on account of its amenities. It has ever been a social evil for the land of a nation to be concentrated in the hands of the few, and it has now become essential to increase the number of cultivating owners. There are various sound schemes—Mr. Jesse Collings', for instance—whereby the farmer would gradually buy his holding, without encroaching on his working capital or paying a larger annual sum than he should be well able to afford if he is handling his farm rightly.

Again partnership farming, now hardly understood in this country, should be developed, and although it could never become a widespread system it has certain advantages. A few demonstrations of this system are to be found in England. Under

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partnership farming the landowner provides the land and the working capital, he puts in a highly skilled man at a nominal wage who is solely responsible for the working of the farm, and who pays the landowner rent and interest at 5 per cent. on the working capital. After all expenses have been deducted, profits are shared between the landowner and his partner.

The advantages are :—

- (1) To the partner, that he is enabled to embark upon farming operations which want of capital might otherwise have rendered impossible. It is to the interest of the partner to make the farm pay as well as possible, which is by no means the case with the ordinary bailiff.
- (2) To the landowner, that he obtains the services of a highly skilled man of a type superior to the ordinary bailiff.
- (3) That he receives rental, a good interest on his capital, and a certain proportion of the farmer's profits as well; the landowner thus becomes commercially interested in the cultivation of his land.

Partnership Farming

TABLE XXI.

COMPARISON OF THE NET INCOME RECEIVED BY THE LAND-OWNER FROM A 500 ACRE FARM UNDER ORDINARY TENANCY AND UNDER THE PARTNERSHIP SYSTEM.

Actual rental prior to partnership.	Rental as paid under partnership.	Increase.
		£ s.
200 acres at 5s. £ 50	200 acres at 10s. £ 100	
300 „ 16s. 225	300 „ 20s. 300	
Total £275	£400	125
Interest on £5000 trust money at 4 per cent. £200		
„ „ „ invested in farm at 5 per cent. £250		50
A net profit for division of £615 was declared, the partner taking £307 10s., and the landowner £307 10		307 10
Total increased income for landowner		£482 10

NOTE.—When taken over the farm was in very bad condition and much of it had to be bare fallowed. This is the fourth year of the partnership, and in spite of its bad condition the farm paid the owner rent and interest from the first year, and from the second year profit. The 200 acres is very heavy clay, situate some way from the main farm.

There has been in the past much good in the relationship of landowner to tenant, and this need not be lost in developing the industry. Nothing could be more ideal than the relationship of landowner and farmer in

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Denmark, where they both work together in a highly industrialized agriculture.

M. The Government.

The Government should see that the Board of Agriculture possesses sufficient revenue wherewith to play its part in the development of the land. A yearly revenue of at least £1,000,000 is needed by our Ministry of Agriculture if it is to be of the same standard as those of other countries, and if it is to have a staff, in numbers and efficiency, equal to the work of building up the agricultural industry of the United Kingdom. The Government should give facilities to tenants to purchase their holdings. They would also do well to encourage the landowner to sell some of his settled estate by allowing him to retain under his own control, and for the purposes of developing the remaining portions of his land, 10 or 15 per cent. of the capital realized. This policy has been followed in Denmark with great success. But in Denmark they are very wise, and the Government and the landowners have worked together for the

Duty of the Government

development of agriculture. In this country the Government has often worked against the landowner, and perhaps this is why landowners have never come forward and offered to be the voluntary agents for carrying out a land policy. Owing to the teachings of a certain section of politicians the attitude of the urban population has become hostile in the first place to landowners, and hostile finally to really beneficial land reforms, because it is ignorantly supposed that the landowner would be the chief beneficiary. Not only should feelings of hostility be out of the question, but the great commercial section of our community should realize that no country ever has been or ever can remain in a sound condition without a flourishing agriculture; that a flourishing agriculture is necessary to permanently secure their own interests in times of peace and still more so in times of war. A house divided against itself cannot stand. Certainly this attitude of hostility makes sound and wise development almost impossible, and yet this attitude is due to want of understanding of what land means to the nation, and of the

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fact that the conditions of the agricultural producer cannot be improved without carrying with it the improvement of all classes of the community. If better conditions are created for the agriculturist he will produce more. If he produces more he will be in a position to buy more implements, more tools, more artificials, and other things provided by our urban industries. Agricultural development cannot be effected by penalizing one section of the agricultural community, *i.e.* the landowner, and unduly curtailing his power of expenditure. What is needed is the type of landowner who in the first place is pledged to development, and in the second, has capital to effect it. Higher rents would give him more spending power and would help to raise the standard of cultivation as well. The provision for the agriculturist of access to capital is so necessary, that if it is impossible under our present system for banks or for voluntary effort to create the needed machinery, then the Government must undertake the work. And if careful thought is given to the problem, it should be possible to devise a system of credit under which the

Revision of Taxation

Government guarantee would suffice, without actually furnishing the money from the exchequer. Agricultural education is only just beginning to reach the class for which it is intended; steady extension is needed, and the Government should be ready to develop it in every way. Also questions of transport and the encouragement of subsidiary industries, necessary to agriculture, should receive attention. Agricultural land suffers unfair treatment in regard to local taxation, the whole system stands in need of revision, but so far no Government has done more than tinker with it. If farmers were obliged to pay income tax two good results would ensue; in time it might force them to keep accounts; and also, if farmers were paying their full income tax, it would surely be impossible for the Government to allow them to go on suffering injustice from the unfair incidence of rating. In short, the Government must give its mind to the creation of conditions favourable to agriculture.

CHAPTER IV

The Labourer

It is very hard to forecast what final effects the conditions created by the war will have upon rural labour. There may be a serious shortage of agricultural labour after the war is over, because there is no doubt that a large number of rural labourers, having once been shaken out of their groove, will not return to it. On the other hand, there may be an increased supply of labour in those parts of the country, at any rate, where wages are good and housing conditions decent. There is little doubt that a large number of ex-service men will elect an outdoor occupation, and though it is to be hoped that many of these men will be enabled to settle on small farms of their own, still a considerable number will probably be available as farm labourers.

Low *versus* Economic Wages

In about sixteen counties wages have been, and still are, altogether too low to secure efficient work. Not only is it bad from the farmer's point of view to pay so low a wage, but from the national point of view it is altogether wrong. If farmers in these counties cannot so organize their farming operations as to be able to pay a higher wage, then they will have to give place to farmers who can so organize. That low wage is not economic. The labourers in the northern counties, whose wages may be 40 or 50 per cent. higher than the southern average, more than make up for the higher wage by the efficiency of their work. Take for instance the case, an extreme one, of a milker in a southern county receiving fourteen shillings a week in cash, plus certain extras, and a north-country milker receiving twenty-four shillings in cash, plus similar extras,—the one man milks ten cows, the other twenty, the yield of the cows being about the same.

It is not only a question of actual wages. Man does not live by bread alone. It is

The Labourer

when we come to the opportunities for betterment that the conditions are so unfavourable. In Denmark, 70 per cent. of the rural labourers have sufficient land to give them a very large measure of independence. Yet this does not create a shortage of labour for the farmer. The thing to strive for is a big labouring population in the rural districts possessing a direct interest in the land. These men will do so many days' work in the year on the surrounding farms, and their sons also will furnish the farmer with excellent and intelligent labour because they have been brought up under right conditions. There is nothing so dangerous from the national point of view as a large landless proletariat. Yet in Great Britain this class is larger than in any other country in the world.

Here, by the way, it is well to bear in mind that it is not only the rural labourer who should have access to land but the urban worker as well. Some 70 per cent. of the dock labourers employed in Antwerp have sufficient land to give them occupation, and provide food for their families, during periods

Urban Worker on the Land

of slackness at the docks. Nothing is more disastrous for a man in any walk of life than a period of enforced idleness. When work at the docks is at high pressure, the gardens are maintained by the women and children. The development of such dual occupation should play a most important part in improving the condition of the working man in this country. No doubt some people will say that there is not enough land to go round, but such a statement shows how little the question has been studied. What can be done in Belgium, with its far greater population to the square mile, can be done in England.

To return to the question of developing opportunity for getting on the land, measures ought to be taken from the moment the boys leave school. Farmers should help by asking the school teacher to recommend boys for employment, and preference should be given to those pupils who have done best in the manual classes. This is presupposing the introduction and development of manual instruction in all our elementary schools. Thus, from the outset,

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the farmer will be employing a boy who knows how to use his hands intelligently, and therefore is worth more than the boy who leaves school without the knowledge of how to handle a tool or implement properly. The writer knows an estate in the south of England where every intelligent boy is noted and kept in view, and as he comes to manhood he is given the chance of obtaining a bit of land, and later, of increasing his holding until he becomes a small farmer; finally, if he prospers, he will have the first claim on a larger farm on the estate when it becomes vacant. This is organization. If it were carried out on all estates we should not see such a large number of youths quitting the country at about the age of twenty-one.

Another feature in rural life which should be developed here, and which plays an important part in certain districts of Canada, is the establishment of farm lads' clubs. The ordinary farm lad has a very dull time. Cricket or rifle clubs may be started, but for one reason or another he cannot belong to them. If farmers wish to attract a fair share of the rising generation to farm life they

Social and Educational

must make life more agreeable. They must recognize that these lads should have one afternoon a week for purposes of recreation. Further, if they want the lads to become really effective labourers, they will have to give them every facility for attending continuation instruction when this is provided. These farm lads' clubs would do much in this direction. They would be recreational and educational in character. Boys of fourteen and over would join. They might attend lectures and continuation classes. From a psychological point of view this is very different from going to school; boys, who would object to going off singly to a course of instruction, are quite keen to receive it if given to them collectively at a meeting of their club. In other countries continuation instruction is carried on until the youth reaches the age of sixteen or even eighteen. There are, no doubt, many difficulties in the way of allowing the farm lad to attend day continuation classes for one morning or one afternoon a week; but these difficulties can be overcome by proper organization.

In conclusion, there is little doubt that

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after this war the employer of labour will have to readjust his views, and change his attitude towards the labouring man. In urban industries labour must be accorded, undoubtedly, a larger voice in the control, and a larger share of the profits in the form of wages. So in agriculture. If the farmer wants to have keen and willing service, he will be well advised to give his labourers, over and above their wages, some share in the profits, and so win their active interest. Mr. Edward Strutt has done this for many years. The working man is what the employer makes him. If he is treated well and made to feel an interest in his work, he becomes a friend, and plays the blessed part of giving more than he receives.

NOTE.—In regard to the recruiting of agricultural labourers, the only satisfactory way of safeguarding the land is to regard it as a great munition factory of the first importance, and to see that a sufficient number of hands are left to run it effectively. For after all food is a munition of war.

CHAPTER V

Small Holdings

THE framers of the Small Holdings Act of 1908 meant it to be, undoubtedly, a Land Settlement Act, but in practice it has not achieved much in the way of land settlement. Rather should it be described as an Act for providing tradesmen with accommodation land, which they often handle badly, and for giving additional land to men already living in the country and holding a few acres.

During the seven years of the working of the Act, only seven hundred and seventy-four fresh families have been placed on holdings newly equipped with cottages and buildings. In addition to this, a certain number of men have been placed in old farm-houses which have been divided up for their use, and in farm cottages to which land has been attached. The actual increase in the

Small Holdings

rural population due to the working of the Act is very small indeed, and in no way commensurate with the time and trouble devoted to the work. From the outset most of the County Councils were determined, as far as possible, to avoid building. They were also very much averse to big schemes; yet it is the big scheme which admits of the best financial treatment, *i.e.* purchasing at the cheapest rate per acre, equipping at the lowest cost, and making the best provision for the tenants. There are certain exceptions. Cheshire, for instance, has developed small holdings under the colony system. The results are interesting, as shown in the following table :—

TABLE XXII.

CHESHIRE COUNTY COUNCIL.

Four colonies aggregating 3070 acres.

	No. of Hold- ings.	Popu- lation.	Cattle.	Horses.	Pigs.	Sheep.	Poultry.
As at present .	95	536	2282	170	1256	210	3400
Before purchase	29	175	1142	63	306	190	760
Increase . .	66	361	1140	107	950	20	2640

Failure of 1908 Act

In general terms, County Councils have not realized their opportunity of developing the Act into a great movement for building up the rural population, but rather have contented themselves with administering the Act along the lines of least resistance. Very few county councillors have devoted time to the serious study of the question, or have ascertained under what conditions successful land settlement has been achieved in other countries; therefore, as at present composed, the County Council Small Holdings Committees are not properly qualified to deal efficiently with the matter. In no case have men been placed on the land under rightly devised conditions. This side of the question will be dealt with in the next chapter. Even if the work of providing applicants with allotments, and providing additional land for existing small holders, may reasonably be left to the County Councils, it is not reasonable to place upon their already over-burdened shoulders the work of devising and administering a great Land Settlement Scheme; this must be under the control of men who have studied the problem.

Small Holdings

The Act of 1908 also made provision for creating agricultural credit societies, and, in conjunction with the Agricultural Development Act, for the starting of demonstration farms. But nothing has been done so far to bring these into existence. Yet access to capital is as important as access to the land itself. There have been many advocates of the policy of "back to the land," and many who urge that the land ought to produce more, but the very people who have cried the loudest have not taken the trouble to consider, in the first place, what are the necessary conditions of successful settlement and development, let alone to see that these conditions are created.

In the next chapter the specific case of land settlement for ex-service men will be considered, but it is to be hoped that the system devised will be so sound that it will form a basis for all land settlement in this country.

CHAPTER VI

Land Settlement for Ex-Service Men

FOR the sake of clearness I have arranged this chapter under five headings :—

- (1) The importance of the problem.
- (2) The sufficiency of land in the United Kingdom.
- (3) The suitability of ex-service men as cultivators of the soil.
- (4) The conditions of settlement.
- (5) The machinery necessary for, and the cost of, the development of land settlement.

(1) The Importance of the Problem.

Under this heading the chief points to bear in mind are :—

- (a) If the necessary measures are not taken, the bulk of ex-service men will at the close of the war drift into our already overcrowded towns.

Land Settlement for Ex-Service Men

- (b) While there will be want of employment probably in many towns, agricultural land, if properly handled, can employ thousands more cultivators than it does to-day. Fifty years ago one million more men than at present found an occupation on the soil. It is sometimes said that if labour-saving machinery were used to the full, less and not more men would be employed on the land. But this will not be the result if, at the same time, cultivation is made more intensive. In Denmark labour-saving machinery is used to a much greater extent than here, and yet about twice as many men are employed per 100 acres.
- (c) If the health and physical standard of the nation is to be maintained, we must see to it that the rural population suffers no further decline, but rather that it is built up and increased.
- (d) The soil of the United Kingdom is far from producing the amount of food it is potentially capable of producing. Too long have we practised extensive

Need for a Plan

methods of cultivation and neglected the development of intensive methods, so that the placing of ex-service men on small areas of land, where they will be taught to practise these intensive methods, will be a distinct gain to the nation.

- (e) If the men who have been fighting for our safety want to settle down to a life in the country rather than in the town, it is our bounden duty to enable them to do so, and to provide for them the most nearly perfect conditions of settlement.

It will be necessary to have a completely thought-out plan of land settlement for ex-service men ready to put into operation the moment the need arises. If we wait until the need is present, and then set out to devise the system, the result will be unsatisfactory. Although the proper settlement of ex-service men will be a new type of work in England, for never before has any serious attempt been made to place men unskilled in agriculture upon the land, and although to a certain extent this settlement must be treated as a problem by itself, still

Land Settlement for Ex-Service Men

the system devised should be so carefully thought out, and should be so sound, that it will provide a model of what land settlement ought to be for all classes of settlers.

Arguing from what took place after the Boer war, there seems to be little doubt that a large number of men now serving in the forces will wish to settle on the land at the end of the war. There is also the evidence of the men themselves, many of whom say quite definitely that they will never return to clerical work.

With the proportion of the rural population to the urban ever decreasing, nationally and imperially this question is of the greatest importance.

It is clear that cultivators of the soil are more needed than any other type of citizen in the United Kingdom. We should have an overflowing agricultural population at home, so that from its surplus we can send the right type of citizen to win wealth from our lands overseas. From the point of view of defence, large areas of thinly peopled land are a source of weakness. From the point of view of economy, land is

After the War

the greatest asset of the Empire, and all our attention should be concentrated on developing it. The war makes this more necessary than ever, for the proper development of the land, more than anything else, will hasten our recuperation from the effects of the war. We must remember that it was the earnings of the French cultivator which paid the war indemnity of 1871.

If left to themselves a large number of our ex-service men who choose a country life will migrate to the colonies. Within the last few years the Dominion and Colonial Governments have been giving more and more attention to the question of land settlement. Sound and attractive conditions have been created. Conditions of settlement, equally sound and equally favourable, will have to be created within the United Kingdom if the fair proportion of these men are to be induced to settle at home.

In considering the case of ex-service men we must, however, bear in mind the whole question of Imperial land settlement, of which this only forms a part. Not only do we want as many ex-service men as possible to

Land Settlement for Ex-Service Men

settle on the land, but we want a much larger proportion of the rising generation to go in for an agricultural career. If our present system of education is not calculated to produce the type of citizen required, then it must be altered. If the present general conditions affecting agriculture are not sufficiently favourable to attract men to the land, then better conditions must be created. If the consolidation of the Empire and of the Kingdom demands a great increase in the number of settlers on the land, then the nation must take the necessary measures, and be ready to advance large sums of money to secure this end. It must behave in no niggardly fashion. If it does, then the whole movement will fail, and whatever money is advanced will be lost. The nation must realize that it is not performing an act of charity, that it is not benefiting a group of men, or developing one class of citizen, at the cost of the ratepayer. Money wisely spent on a sound land settlement scheme is remunerative. The fact must never be lost sight of that no scheme of land settlement can be undertaken which is not

Its Financial Aspect

commercially sound. New Zealand gives a splendid demonstration of what can be done, and of what can be spent upon land settlement. Up to date, some £6,000,000 have been expended on land settlement, and some £15,000,000 advanced to settlers. Very few bad debts have been incurred, and at the present moment the New Zealand Government is deriving a clear profit of some £70,000 a year from its land settlement department (*vide* the New Zealand Year Book for 1914).

If the present machinery for dealing with land is inadequate, if it does not secure the full potential development of our soil, and the fullest possible effectiveness of each cultivator, then it must be scrapped, and new machinery created which will deal with land settlement scientifically as an imperial and not as a parochial problem.

(2) The Sufficiency of Land in the United Kingdom.

Every year a very considerable amount of land changes hands. One large London firm alone is instrumental in the sale of about

Land Settlement for Ex-Service Men

74,000 acres of agricultural land annually. The sales of country property which are registered at Token House Yard average about £4,000,000 annually. In general terms, therefore, sufficient land comes into the market in the ordinary course of business to allow of considerable areas being bought for land settlement schemes.

For settlement of the type advocated here very expensive land should be avoided, and if considerable areas are bought it should be possible to purchase at a price not exceeding £25 an acre. The idea that so commonly prevails that only very rich land is suitable for small holdings must be combated. Nearly any type of soil, with the exception of heavy clay, is suitable for small farming. It is only necessary to study what has been done in Flanders and parts of Denmark to realize that this is so. In general terms the rich agricultural lands are already pretty closely settled, and future settlement schemes should be so devised and planned as to cause as little disturbance as possible to sitting tenants. Where disturbance is unavoidable, it is the large farmer rather

Provision of the Land

than the small one who should be affected. There are a good many tenants holding two or three separate farms of an aggregate area of from 2000 to 3000 acres in districts well suited for small farming, and if the general good demands it, it will be quite legitimate to reduce the area held by these men. Although it is improbable that compulsion would often have to be resorted to, still compulsory powers should be provided as in the case of the Small Holdings Act.

No settlement ought to be less in extent than 2000 acres, and from 2000 to 3000 acres, when obtainable, would probably be the most economic size for the following reasons :

- (a) A settlement on this scale admits of a much sounder financial scheme than in the case of settlement of small areas.
- (b) Collective buying and selling can at once be developed. This secures for the cultivator the purchase of commodities of the best quality and at the lowest price, also the placing of his produce on the best market.
- (c) Each colony should have its expert

Land Settlement for Ex-Service Men

agricultural organizing instructor, and each holder of land should be charged a fee for the services of the expert, so that a considerable number of colonists are necessary to reduce the cost to the individual holder.

- (d) The establishing of subsidiary industries is thus made possible—such as cheese, butter, jam, fruit bottling and pulping factories.
- (e) Better social amenities can be provided.
- (f) And—most important—a system of motor transport can be developed, enabling the colony to be placed at a considerable distance from a railway station. This would tend greatly to reduce the purchase price of the land.

The guiding principle to bear in mind in connection with the quality of the soil is that the less good the land, the greater the need for expert treatment. If, however, the poor soils are scientifically treated, they will respond to an astonishing degree.

The Personal Factor

(3) The Suitability of Ex-service Men as Cultivators of the Soil.

This is a question which requires very careful consideration. To be a successful settler a man must be intelligent; but it is a mistake to assume that a man must have been brought up on the land, and be skilled in agricultural processes, in order to qualify him for success. The Governments of Australia and New Zealand, the Salvation Army, private individuals such as Mr. S. Copley in Western Australia, and successful syndicates in the United States, have done excellent work in the way of settling urban artisans on the land under expert guidance.

It may be said that in the past, whenever the settlement of ex-service men has been attempted in England, the results have been unsatisfactory, and the men have not got on well with their neighbours. The reasons for this are not hard to find. (1) They were settled under wrong conditions, (2) in no case were they settled in sufficient numbers to form a society unto themselves. Another point to bear in mind is that the men discharged at the end of this

Land Settlement for Ex-Service Men

war, for the most part, will not be professional soldiers of many years' standing, but men who before the war were thrifty, capable and hard-working civilians. Undoubtedly ex-service men should be settled in large groups, but it does not follow that they should be kept in watertight compartments. The wiser course would seem to be, granted a considerable area of land, to develop a part of it as a colony for skilled agriculturists, and to have a demonstration farm, say of 100 or 150 acres in the centre. This farm would be the headquarters of the agricultural organizing instructor. It would give a permanent demonstration of the right treatment of the land, and it would also be a training centre for the ex-service men. In this direction the example of the skilled settlers would be of the greatest use. As far as possible the ex-service men should receive a certain amount of training before entering upon their duties. If, for instance, the cultivator enters upon his holding in October he could receive during the winter a certain amount of instruction in farm processes, under guidance, and actually upon

Training and Guidance

his own holding. Instruction should be continued by means of courses during the three or four subsequent winters. The success of ex-service men with little or no skill in agriculture will depend on two main factors :

- (1) A sufficient amount of expert guidance.
- (2) The creation of right conditions.

If the Government cannot make up its mind to see that these two points are effectively secured, then it will be far better to leave the whole movement alone, for it can only end in failure.

(4) Conditions of Settlement.

Reference has been made to the importance of creating sound conditions. It will now be necessary to see what are the factors which conduce to these sound conditions. A study of the problem will show that wherever land settlement has succeeded, certain underlying principles in every case have been observed. Fortunately, there are examples from old countries as well as from new ; otherwise it might be said that it is possible to create these conditions in our

Land Settlement for Ex-Service Men

Dominions, but impossible to do so in an old country like Britain. The main principles which are so necessary are summarised under the following headings :

- (1) Settlement in colonies rather than in isolated units.
- (2) Ownership rather than tenancy.
- (3) The initial years to be made as easy financially as possible.
- (4) Provision of easy access to capital.
- (5) Provision of effective and expert guidance.
- (6) Development from the outset of co-operation, or at all events of organized collective buying and selling.

There is no example in the United Kingdom of a land settlement scheme where all or even most of these fundamental principles have been observed. We have inclined to a system of tenancy rather than of ownership, and of tenancy of an unusual type, where the tenant pays into a sinking fund which in the end will make the County Council and not himself the owner of the land. There is hardly an example in any other country of a land settlement scheme

Necessary Conditions

that is not based on ownership, but the ownership is not necessarily absolute ownership, conditions are attached. On the one hand provision must be made against undue subdivision of the land, and on the other to prevent any one man buying up a number of small holdings. Conditions in regard to the standard of cultivation should also be enforced.

The importance of making the initial years as easy as possible financially, while the small holder is finding his feet, would seem to be so obvious as hardly to require stating, but in actual practice in England the newly settled small holder has to make heavier annual payments during his first years, than later on when, presumably, he has become more firmly and successfully established. Again, there is much misapprehension in this country in regard to affording facilities for borrowing. The evil system of the perpetual mortgage has been so universal, and its bad effects have been so widely felt, that people think it would be unwise and dangerous for a small farmer to be able to borrow money. But this is not so when the loan is for a short period and a sinking fund is a *sine qua non*.

Land Settlement for Ex-Service Men

It is also widely held to be useless to expect a small holder in this country to make anything like so good a living as he could if settled in the New World. This again is erroneous. Even under the present unsatisfactory conditions large numbers of men are making a very good living out of their small holdings. At Fairby in Kent, where the conditions of settlement have been thought out perhaps more carefully than elsewhere in England, there are several settlers from British Columbia who are decidedly of the opinion that if really sound conditions of settlement were created in this country, we should see a reflux from our colonies of cultivators of the soil. There are several examples at Fairby of men with five-acre fruit-and-market-garden holdings, plus poultry and pigs, who are earning a clear income of £100 or £120 a year. Evesham and Wisbech also afford many examples of success, but here the land is exceptionally rich. The following budget is interesting as showing what can be done on poorish, light soil on a 26-acre holding run by a Dane:—

Some Hopeful Examples

TABLE XXIII.

DANISH SMALL HOLDING.

<i>Area and Cropping.</i>		<i>Working Capital.</i>	
Lucerne . . .	5 acres	10 cows . .	£222 10 0
Barley . . .	7 „	Implements .	38 0 0
Oats . . .	7 „	Tenant Right	90 0 0
Mangolds . .	7 „	Total .	£350 10 0
Total . . .	26 acres	No horse; milk is fetched by dealer.	
House, buildings, garden and pad- dock . . .	2 „		
<i>Expenditure.</i>		<i>Receipts.</i>	
Rental . . .	£36 0 0	Milk . . .	£310 0 0
Rates . . .	7 0 0	Cereals . .	112 0 0
Interest on capital . . .	17 10 0	Pigs (none)	
Extra labour, horse and man	22 0 0	Poultry . .	5 0 0
Foodstuffs . .	93 0 0	Vegetables sold	8 0 0
Artificials . .	26 0 0	Consumed . .	3 0 0
Corn for seed .	11 0 0		
Sundry . . .	10 0 0		
Profit . . .	215 10 0		
Total . . .	£438 0 0	Total . . .	£438 0 0

N.B.—This holding is worked by the man and his wife, and in some respects is an exceptional case, but an income of £100 a year might fairly be expected from this holding. The garden has as yet received little attention. The rental is 50 per cent. higher than that

Land Settlement for Ex-Service Men

of the surrounding land ; but still is low because it was taken over as an "established," not a newly equipped holding.

The land under present cropping can easily carry 15 instead of 10 cows as at present.

Having given briefly one or two concrete examples of what is being done, it may not be inexpedient to draw up two schemes of settlement, say for a 2000-acre colony, showing two methods of dividing up this area. No hard-and-fast rule can be laid down in regard to the apportionment of the different sizes of holdings, each case will have to be treated on its merits.

Two Tentative Schemes

TABLE XXIV.

LAND SETTLEMENT.

EXAMPLES OF MODEL COLONIES.

I. A 2000-acre colony, chiefly 25-acre arable holdings.

Cost of land at £25 per acre . . . £50,000

Class of land, light and easy to work.

<i>Number of Holdings.</i>	<i>Acres.</i>
68 mixed farms of 25 acres each	1700
16 fruit and vegetable growers, 5 acres each	80
20 extra labourers, 1 acre each	20
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104 total families	1800
Common grass run for 1- and 5-acre men	69
Central dépôt	100
Demonstration holdings:	
<i>a.</i> 25 acres	25
<i>b.</i> 5 „	5
<i>c.</i> 1 acre	1
<hr/>	
Total	2000

Average cost per family = £50,000 ÷ 104 = £480.

N.B.—In this scheme the 25-acre holding dominates. It can be either a milk, pig, and poultry holding, growing lucerne, cereals, and mangolds, as the main crops, or live stock could form the basis.

Cost of Equipment.

104 cottages at £200 each	£20,800
68 buildings (design 14 C. D. 6708) at £120	8,160
16 fruit and vegetable holdings at £40 per shed	640
20 one-acre holdings at £10 per shed	200
Roads, drainage and water supply	3,000
Tenant right on 2000 acres at £1 per acre	2,000
<hr/>	
Average cost per family = £334.	<u>£34,800</u>

Land Settlement for Ex-Service Men

Working Capital.

68 twenty-five acre holders at £250	.	£17,000
36 one- and five-acre holders at £50	.	1,800
		<u>£18,800</u>

Average cost per family = £180.

Total Cost of Scheme.

Purchase money	.	£50,000	average per family	£480
Cost of equipment	.	34,800	" " "	334
Working capital	.	18,800	" " "	180
		<u>£103,600</u>	" " "	<u>£994</u>
Temporary remis- sion of interest	.	6,216		
Total.	.	£109,816	total per family	£1,056
Capital for central farm and demon- stration farms at £15 per acre	.	1,965		
Motor lorry and trailer	.	1,000		
Extra horses, imple- ments, etc., for hir- ing out to holders		300		
		<u>£113,081</u>		

II. A 2000-acre colony, chiefly fruit and vegetable holdings.

Cost of land at £25 per acre . . . £50,000

Class of land, light and easily worked.

NOTE.—Under intensive methods of cultivation a minimum amount of fencing is required, as the live stock are not allowed to roam in the fields. Legal expenses are not put down in these estimates, because the existing number of cottages and buildings on any area of 2000 acres would reduce the expenditure on new buildings to an extent sufficient to cover legal expenses.

Two Tentative Schemes

Number of Holdings.

	Acres.
25 mixed farms of 25 acres each	625
200 fruit and vegetable holdings of 5 acres each .	1000
72 one-acre holdings	72
72 one-acre holdings for disabled solders . . .	72
<hr/>	
369 families	1769
Common grass run	100
Central dépôt farm and demonstration farms .	100
<i>a.</i> 25 acres	25
<i>b.</i> 5 „	5
<i>c.</i> 1 acre	1
<hr/>	
	2000
<hr/>	

Average cost per family $\pounds 50,000 \div 369 = \pounds 135$ 10s.

Cost of Equipment.

365 cottages at $\pounds 200$ each	$\pounds 73,000$
25 buildings at $\pounds 120$	3,000
200 five-acre holdings at $\pounds 40$ per shed . .	8,000
144 one „ „ at $\pounds 10$ per shed . . .	1,440
Roads, drainage and water supply	5,000
Tenant right at $\pounds 1$ per acre	2,000
<hr/>	
Total	$\pounds 92,440$
<hr/>	

Average cost per family $\pounds 92,440 \div 369 = \pounds 250$ 10s.

Working Capital.

25 twenty-five acre holders at $\pounds 250$ each . .	$\pounds 6,250$
344 one- and five-acre men at $\pounds 50$	17,200
<hr/>	
	$\pounds 23,450$
<hr/>	

Average cost per family $\pounds 23,450 \div 369 = \pounds 63$ 10s.

Land Settlement for Ex-Service Men

Total cost of scheme.

		Average per family.
Purchase money	£50,000 . . .	£135 10 0
Cost of equipment	92,440 . . .	250 10 0
Working capital	23,450 . . .	63 10 0
	<u>£165,890</u>	<u>£449 10 0</u>
Temporary remis- sion of interest	10,072 . . .	22 0 0
Total	<u>£175,962</u>	<u>£471 10 0</u>
Capital for central depôt as before	3,265	
	<u>£179,227</u>	

The annual cost to the individual holder will be :

(a) for the 25-acre holding :

Cost of land	£625
Cost of cottage	200
Cost of buildings	120
Share of general equipment	30
	<u>£975</u>
Working capital	250
Total	<u>£1225</u>
Interest and sinking fund at 6 per cent.	£73 10 0
Rates, say	4 0 0
Fee for expert's services	4 0 0
	<u>£81 10 0</u>

$$£81\ 10\ 0 \div 25 = £3\ 13\ 2 \text{ per acre.}$$

(b) for the 5-acre holding :

Cost of land	£125
Cost of cottage	200
Cost of buildings	40
Share of general equipment	15
	<u>£380</u>
Working capital	50
Total	<u>£430</u>

Two Tentative Schemes

Interest and sinking fund at 6 per cent. .	£25	0	0
Rates, say	3	0	0
Fee for expert's services	2	0	0
	<hr/>		
	£30	0	0

(c) for the 1-acre holding :

Cost of land	£25		
Cost of cottage	200		
Cost of shed	10		
Share of general equipment	10 ⁿ		
	<hr/>		
	£245		
Interest and sinking fund	£14	10	0
Rates, say	2	0	0
Fee for expert's services	1	0	0
	<hr/>		
Total	£17	10	0

Notes on the above tables :—

(1) The composition of the colony will naturally vary according to locality and local conditions.

(2) Though under present conditions the small farmer usually requires from 40 to 50 acres, under proper supervision, growing the right crops and cultivating intensively, 25 acres should do all that is required.

(3) It may prove advisable to include holdings up to 50 acres in some schemes, but the great object must be to use the land as intensively as possible.

(4) Certain ex-service men with some capital may apply for holdings larger than 50 acres. Such applicants should be treated differently. As a rule they could obtain their farms by private negotiation, but arrangements might be made to assist them in getting agricultural training, and to advance them some capital if necessary.

Land Settlement for Ex-Service Men

(5) On the 25-acre holdings fodder crops must be used instead of grass, and of these lucerne must be the mainstay. It is suitable for stock of all descriptions; 1 acre of lucerne is equal to 3 acres of good grass, and up to 6 acres of poor and indifferent grass. The only permanent grass on the holding should be a small paddock in which to turn out the cows or beasts from time to time.

(6) The main crops of the 25-acre holdings would then be lucerne, mangolds, cereals.

(7) The common grass run is provided for the 1- and 5-acre holders who elect to keep a cow; in the main, however, the milk required by the colony should be produced on the 25-acre holdings.

(8) Each colony should be as far as possible the centre of subsidiary agricultural industries, such as—

Cheese and butter factory.

Bacon-curing factory.

Jam, fruit-bottling and pulping factory.

Alcohol distillery for manufacturing purposes.

(9) The key to successful cultivation of small areas lies in adopting to the full intensive methods, so that in general terms these colonies should be on arable land.

(5) The Machinery for and the Cost of the development of Land Settlement.

First of all to consider the question of cost. There is no getting away from the fact that it takes a large amount of money to settle a man effectively on the land. £500 per man is a figure that is commonly given,

Cost and Machinery

but in Great Britain it is doubtful whether a man could be settled on the land at so low a sum. If the land has to be purchased, and the practice of providing each man with a fully and expensively equipped holding is followed, then the cost will be approximately £1000 per settler. This sounds a large sum, but not for one moment should it be forgotten that it is not a case of the spending of £1000, but the wisest possible investment of it. That £1000 will bear good interest and it will be repaid. That £1000 will place on the land a cultivator who will produce up to £500 worth of food annually for the nation.

The two schemes just given show that, in a colony in which the five-acre holding dominates, the average cost of placing a cultivator on the land works out at £500, but when the twenty-five-acre holding is the chief feature of the scheme then the cost rises to £1000 per man.

There are, however, four ways in which the total expenditure can be reduced :

- (1) By using Crown lands as far as possible and so avoiding cash payment for the purchase of land.

Land Settlement for Ex-Service Men

- (2) By providing the minimum housing accommodation and equipment and allowing the holder gradually to enlarge and develop these as he becomes better off.
- (3) On most areas of 2000 acres a certain number of cottages already exist which would be included in the purchase price of the land.
- (4) To a limited extent childless married couples could lodge with other families.

The working capital advanced to the men need not necessarily be advanced in a lump sum, but as need arises. Where the holder of 25 acres goes in for cows he at once receives income from the sale of milk. In the case of the one- and five-acre holdings the working capital of £50 per cultivator is the lowest possible amount. Often a man would have to use some of this to live upon until his holding began to yield him income. Some of these men would undoubtedly have a little capital of their own.

In regard to payment of interest and sinking fund, in some of our dominions the settlers are excused all payment for the first three years, the deferred interest being added

Methods of Financing

to the total capital sum expended in placing them on the land. In Sweden the practice is to charge interest at the rate of 3·6 per cent. on the total expenditure per holding (including working capital), during the first three years; and then from the fourth year the loan is divided into two halves, one-half of which is liquidated by an annual payment of 6 per cent. (including interest at the rate mentioned), while on the other half interest alone is paid until repayment of the first half is completed, which occurs in about twenty-nine years from the date of the loan; then the remaining half has to be cleared off in five years.

The system proposed here is a compromise between the two foregoing arrangements, the object being to make the holder's annual payments as easy as possible during his initial years, so that 75 per cent. of the interest due from the holder is remitted for the first year, 50 per cent. for the second year, 25 per cent. for the third year, and the total thus remitted is added to the capital sum secured upon the holding. In the fourth year the holder will pay full interest and

Land Settlement for Ex-Service Men

sinking fund, which might equal 6 per cent. on his total capital. One great mistake that County Councils have made is in spending too much on equipment. It is far better to let the men gradually improve their own equipment; initial expenditure is lightened and the man thus secures what best suits his individual case. This is a course that is being followed in land settlement schemes in Sweden (*vide* C. D. 6708, 46).

Apart from the settlement work of the Salvation Army, practically the only machinery which exists for giving land to men applying for it is that of the County Council Small Holdings Committees. Under the new system of land settlement it should not be assumed that there must be settlement schemes for each and every county. It will be wiser to develop settlement in really suitable districts. From all this it is clear that the County Councils should not be the administrative authority for land settlement, even if they remain the authority for providing local tradesmen with accommodation land, or men already living in the country with small areas of land. New

Conclusions

machinery must be created for this work, and it is suggested that the most satisfactory result would be secured by forming a Land Settlement Commission, composed of highly qualified men and assisted by the present Small Holdings Commissioners. The Commission in many ways would be analogous to the existing Development Commission, and would be directly responsible to the Treasury for money expended on settlement schemes.

(6) Conclusions.

Clearly if any large system of land settlement is to be created much public money will have to be provided. We shall also have to face the fact that owing to the complete neglect of scientific Land Settlement by all who should have been concerning themselves with this question, we have no data in this country to go upon. The only course to follow is to study what has been done successfully in other countries, to master the principles which have secured that success, and then to devise a sound system of Land Settlement for the United Kingdom.

Land Settlement for Ex-Service Men

Granted a sound system, it would still have been preferable to have had experimental colonies, and to have developed settlement gradually; but this course will scarcely be possible. If the demand for land is great it will come during the first three years after the conclusion of peace, and it will have to be met at once or potential settlers will be lost to the United Kingdom. On the whole therefore a bold policy will be the wisest.

Although the Land Settlement Commission would concern itself altogether with land settlement in the United Kingdom, still the bigger problem of imperial settlement would have to be kept in view. There should be another Commission or Council, possessing advisory and consultative powers only, which would review the question of land settlement throughout the Empire, and would endeavour to guide migration to the lands most in need of settlement. It would endeavour to bring about an understanding between the Home Government and the Dominion Governments, and the Dominion Governments *inter se*. It would endeavour

An Imperial Conservation Board

to correlate the work of existing emigration agencies and check the loss to the Empire caused by men settling in foreign countries. If the nation is to recuperate quickly after this war, the land must be put to its full use, and every settler must be so placed that he shall be as efficient and effective as possible. If the Empire is to be consolidated from the defensive and economic points of view, we must fill with properly qualified people the land now crying out for population. This is a great work. Carefully thought out administrative machinery is needed to effect it, and though the two Commissions referred to, if created, could do most valuable work, something much bigger is required. The time has come to create a great Imperial Conservation Board on which would sit representatives of the Dominion Governments. Its functions would be to guide the flow of population and to develop our national resources. It is only by approaching the whole problem carefully and scientifically that we can hope to bring order out of the present chaos.

CHAPTER VII

Education

IT has been shown how small is our agricultural population in comparison with our urban population, in comparison with the vast land area of the Empire, and in comparison with the agricultural population of European Germany. It is clear that we must increase the number of people living on the land and by the land, if we are to raise the production of the land of the United Kingdom on the one hand, and, on the other, if we are to consolidate the Empire and keep it British.

If we are to increase the agricultural population we must see that our system of education is of a type that will produce manual workers rather than clerks, for it is certain that if more of these workers are produced the land will get a larger proportion of cultivators than at present. Men trained as

Our Present System

clerks do not turn willingly to life on the land. They do not understand its possibilities or its advantages. The Poor Law Report shows that our present system of education is devised for turning out clerks rather than citizens who can work with their hands. Yet every one should know how to use his hands intelligently. Clerks too would be the better for this knowledge. No greater indictment can be brought against our present system of education than that it is turning out petty clerks rather than intelligent and skilled workers. Our system of education is turning out a higher percentage of unskilled labour than any other system ; worse still the ratio of unskilled to skilled tends to increase. This is a great evil, not only from the agricultural but from the national point of view. If we are to maintain ourselves against the increasing competition of industrial rivals, we must see that our future citizens are trained to be workers as highly skilled and intelligent as those of other countries. Our technical schools and the science courses in our universities do not go far enough. Our employers of labour as a

Education

rule do not yet understand what technical instruction and the proper teaching of science do for industry ; yet this is thoroughly understood by other nations.

Coming to our rural schools, only about 25 per cent. of the scholars remain permanently in the country ; 75 per cent. drift into the towns, or emigrate. In no other country is this disproportion so large. We must remember that all national development is really based on education. When the Danes decided to develop into a nation of agriculturists, the Government and the people concentrated their attention first of all on education. We must do likewise. The first essential is to have teachers who are qualified to give the right instruction. In the past the training of our teachers has been too academic. We must also see that in the teaching profession there is a fair and full percentage of men and women who have been brought up in the country, and whose attitude towards country life is a right one. More than any other class in the country, teachers have the power to mould the rising generation and to guide it in this or that

Rural Needs

direction. In the past school teachers felt that agricultural conditions, particularly for the labouring man, were so bad that they could not influence their pupils to go in for a career on the land. Now times are changing, conditions are improving and will continue to improve. A very great responsibility rests with the teachers. They must take a broad view of things and understand what is to the real advantage of the nation and of the Empire, and must use their influence accordingly. When one remembers the splendid devotion of teachers to the cause of education, and the large amount of unpaid work which they do, one can only look on them as patriots in the truest sense. It is indeed a cause for regret that the importance of their work, and of their position, together with their power for good, have not been more widely recognized in the past.

To pass from the teacher to the question of alterations in our system of education. As the imperative necessity is to increase our agricultural population, we must now approach the question from another point of view; to wit, how to alter our system

Education

in such a way that a larger proportion of the rising generation will elect a career on the land. This does not mean that undue pressure should be brought to bear upon school children to make them become agriculturists. It does not even necessitate the definite teaching of agriculture in the elementary schools. It means, in the first place, that there must be much more practical work in our elementary schools, that more hours must be allotted to manual instruction, and that our country schools must be no longer town schools situated in the country, but schools drawing their inspiration from nature and from the surrounding life. This is only another way of saying that our education must be full and generous. In the past it has been too much a text-book education, which can never be full and generous because it appeals to one side of the child only, and badly to that, and leaves the manual side entirely untouched. In many parts of England the movement towards manual instruction has taken firm hold, but it requires speeding up. It will be found that in those schools where

Manual Instruction

manual instruction has been developed, the literary side, far from having suffered, has actually benefited. And this in schools in which as much as three afternoons in the week are given up to manual work.

If the right steps are taken in the elementary schools, if the interest of the children is aroused in nature and all that that means, in gardening, in rural carpentry, in the principles of co-operation (this is done most effectively in several schools), then there is little doubt that we shall see a much larger proportion of the children electing a country life. After leaving the elementary school, the boys on the farm must not be neglected. There must be practical farm classes throughout the country for these youths. At present, it is too often the older and already skilled men who enter for these competitions, whereas it is for the lads that they are of greatest importance. The writer remembers the case of a boy who was about to leave the country when he entered for a ploughing competition. The results were a prize and the settling down of the lad to farm work. But it is not only practical

Education

classes that we need. We want a systematic development of continuation instruction, by means of day continuation classes, for the rural lads, which would carry their education on to at least the age of sixteen. It is surprising how much can be learnt in half a day a week. If the farmers want to have a good class of labourer they must make it possible for the youths to receive this instruction, and they must aid and not hinder the local education authorities in developing a system of continuation instruction. It would be well for County Councils to make experiments in continuation instruction so as to discover the type of school best suited to local conditions, rather than wait until the central authority takes up the question, for this is bound to come ere long.

It is no use for the farmer to say that continuation instruction is impossible because it would interfere with farm work. It has been achieved in other countries, and therefore it is possible here.

To come to the education of the farmers' sons. Those who go to a secondary school should receive science instruction with a

Secondary Schools

more definite land basis than they do at present in the majority of these schools. If they learn science at all, it should be the science that will be of practical use to them. They generally leave school at sixteen, and the smattering of abstract science they get is of no use. They want the science of living things and organic chemistry. Properly taught, this will so interest them, that they will find means for staying on at school somewhat longer. Several grammar schools in the country are doing excellent work in this direction, and that this type of instruction is appreciated is proved by a large increase in the number of scholars since its introduction. If with a better curriculum in the secondary¹ schools more farmers' sons are induced to attend them, more will consequently go on to the agricultural college, and this will all help to raise the standard of agriculture. But the immediate necessity is for a great development of intermediary instruction by means of the County Council's organizing instructors and the peripatetic

¹ *Vide* Report of the Consultative Committee of the Board of Education, C.D. No. 6849.

Education

staff of the agricultural college. Instruction must be brought to the farmer's door. That is the only way to reach him. Some people still think that the farmer does not appreciate organizing instructors and all that kind of thing, but provided the organizing instructor is the right sort of man, actual experience proves how much mistaken these people are in their conclusions. The English farmer does respond and is willing to take advice.

As regards the landowner, a great alteration in the present system of training must be made. The future landowner must understand the land. He must understand what the land can do for national development. He must understand his own position and his duties in regard to the nation. He need not necessarily be a skilled agriculturist, but he must have a thorough grasp of rural economy, and he must realize what the land is potentially capable of producing, and what his own estate in particular is capable of doing. He must have enough practical education to know if he is dealing with a capable and helpful expert or a

Training the Landowner

charlatan. As with the grammar schools, so in our great public schools, the science teaching needs modification, and further, the future landowner should be taught certain simple principles of rural economy, and should be encouraged to go in for the agricultural course at the university. Cambridge for some time past has had an excellent agricultural department, and it is unfortunate that Oxford has not yet seen fit to follow her example. The want of a properly developed agricultural department at Oxford constitutes a very serious gap in our system of agricultural education.

There are further ways by which the output of potential agriculturists could be increased. Our industrial schools and reformatories should turn out a much larger number of future agriculturists than they do at present. In some of these schools the agricultural training is excellent; every year some 1500 boys leave them to work upon the land and the results have been most satisfactory. This number could be greatly increased if all these schools had a farm attached to them and developed their

Education

agricultural side. Again, in the case of the Poor Law children, influence could be quite fairly brought to bear upon them to go in for the career of greatest use to the Nation and to the Empire. They are brought up entirely at State expense, and all told there are some 234,000 of them. In Austria there are 34,000 Poor Law children. These are all boarded out in carefully selected houses in carefully chosen villages, and with hardly an exception all these children eventually become cultivators of the soil. The time has come for us to realize that the type of citizen and his characteristics can be moulded by education. We should consider what type of citizen is most needed by the Nation and the Empire, and then set about so to revise our system of education that this type may be produced.

CHAPTER VIII

Agricultural Credit

Access to Capital is as important as Access to Land.

WHEN a certain section of politicians and semi-politicians began to agitate in favour of a "back to the land" policy which resulted in the Small Holdings Act of 1908, they approached the question with a preconceived idea in their minds. The land of England was being held up by the landowners, who did not want to sell, and who did not want more people on the land, and the one thing needful was to give people what they were pleased to call "access to land," and then to leave them alone. They overlooked the other factor, really of equal importance, viz. the providing of the would-be settler with access to capital. In every country in the world where measures have been taken to

Agricultural Credit

develop land settlement, from the outset credit facilities were created. In this country no serious attempt has been made to create a system of agricultural credit. In 1911 the Government attempted to formulate a scheme, but the basis was so unsound that it came to nothing. A clear distinction should be made between land banks and credit banks or societies. Technically speaking land banks exist to enable occupiers of land to purchase their holdings, and these do not come under our consideration. Credit banks or societies exist to provide the cultivator of the soil with working capital; in some cases all the working capital is advanced, but more generally they supplement the working capital he already possesses. The essential feature is that the loan is for a short period, and therefore a sinking fund is a *sine qua non*. This is the only sound form of borrowing. At present when a small owner wants to borrow money he has to mortgage his farm. No sinking fund is provided, so that the mortgage becomes a permanent charge on his land. This is the most unsound form of borrowing. The

Raffaisen Banks

underlying principle of all agricultural credit is the mutual guarantee given by all the members of the society. If the members are carefully chosen, and their character and integrity well known, then it is perfectly sound for all the members collectively to guarantee the advances made to the society. This is the system that the Raffaisen banks work upon in Germany. Their turn-over is £300,000,000 a year, and bad debts are very few. The ordinary urban banks in Germany furnish the Raffaisen banks with all the capital they require, for they know it is a sound and safe investment. The formation of a system of credit banks or societies from which the cultivator can borrow would confer the following advantages :

- (1) It would enable a man to take up a holding, which otherwise he could not do.
- (2) It would enable a man so to increase his working capital per acre as to increase his yearly profit out of all proportion to the sum borrowed.
- (3) In the case of the small farmer, he

Agricultural Credit

would be in a position to hold over his crops for improved prices, instead of being forced, as often happens now, to sell in a bad market because he is in need of ready cash.

- (4) It would enable the farmer to buy artificials which otherwise he could not have afforded.
- (5) It would enable many farmers to get financially free from the middleman, to whom their indebtedness is great at present.
- (6) It would provide the agriculturist with the soundest way in which to borrow money.

The objection to the Raffeisen system of credit is that each member of the society must necessarily know the financial position of every other member. If one member borrows, all the society must know the amount of the loan and for what purpose it is granted. Many of our agriculturists would object to this, and there are other good systems under which money can be advanced. In Belgium, for instance, a very excellent method was devised. A few years

Working Systems

ago farmers' clubs were started, which provided centres for social intercourse, and for the dissemination of information beneficial to the agriculturist. A group of twenty or thirty of these clubs was affiliated to a parent club in the nearest big town, the central or parent club having a financial department. If a member of one of the local clubs wished to borrow money, he went to the parent club, entered the financial department and asked for a loan. The clerk asked him if he owned his land, or if he were a tenant. If an owner he could borrow up to 80 per cent. of the value of his assets ; if a tenant, up to 60 per cent. of the value of his stock and tenant right. There was a form of agreement costing only 2s. 6d., which the farmer had to sign, and that was all. The transaction was simplicity itself, and the man left the club with the amount he wished to borrow in his pocket. The security was, firstly, the character of the man, every care being taken in selecting the members of the local clubs, and secondly, legislation gave the central club precedence over all creditors should the borrower become bankrupt.

Agricultural Credit

Under this system a man could borrow money without his neighbours knowing all about it.

There are two divergent opinions in regard to the formation of a system of credit. One view is that the Government should definitely create it, using public money, and the other that a comprehensive system could and should be developed by private enterprise backed by the banks. Action by private enterprise would undoubtedly be preferable ; but although the need for the provision of credit has been strongly urged for some years, few individuals have shown any keenness to create credit societies, nor have the banks shown much willingness to encourage them. They do not seem to realize that the mutual guarantee of all the members of a society constitutes first-class security. The need for this access to capital, however, is so great that if private enterprise fails, then the State must step in and must either strongly encourage the movement, or directly undertake the financing of these societies. Possibly the desired object could be achieved by the State guaranteeing the interest,

Need for State Aid

instead of advancing the capital required. In Belgium many public works—light railways for instance—were financed in this way, for the State guarantee of interest at once made the investment attractive to the ordinary financier.

CHAPTER IX

Conclusions

THE whole object of this short book is to show that the land of the United Kingdom is undercultivated, that it is not carrying the number of people it is capable of carrying, and therefore that it is not employing the number of labourers and cultivators that reasonably it could be expected to employ. On the positive side the land could and should be made to produce more. In every branch of agriculture there is room for increased production. The tables given throughout this book clearly show that there is very little fear of over-production in this country. Gluts of fruit and vegetables do occur, but as a rule they are due not to over-production, but to want of organization.

It is not a question of increasing the amount of home-grown cereals *or* beef, but of increasing the supply of *both*. Special

Wheat Prices

emphasis has been laid upon the important part that wheat must play in the agricultural development advocated. Not only must we grow more wheat from the point of view of defence; quite apart from that wheat is the basis of arable cultivation. The writer has no wish to raise fiscal questions, but the fact must be stated that unless the price of wheat is maintained at 40s. a quarter, there will be no great increase in the percentage of wheat, or indeed of arable land. There are farmers who say that they do not want the guarantee of a minimum price, but on close examination it is found that these farmers do not want to grow wheat, so that their opinion does not count for much. The point is that all the holders of land suitable for wheat-growing must grow more wheat. It is useless to hope or expect that the English farmer will increase materially his area under wheat if the price goes below 40s. a quarter; and it is well worth while for the nation to consider carefully whether from every point of view it is not advisable to guarantee to the farmer that price. With wheat at that price a 5*d.* loaf is possible.

Conclusions

It is wrong as well as useless to ask the English farmer to produce wheat for the nation at an unremunerative price. In France the farmers have a remunerative price guaranteed to them, with the result that in average years they produce £100,000,000 worth of wheat within the country, as compared with £12,000,000 worth grown in England. The price of wheat during the last hundred years has fluctuated far less in France than it has in England, even since the introduction of Free Trade. That the country at large has not suffered by this policy, and that the poorer classes in France have not been obliged to curtail their ration of bread, is proved by the fact that the consumption of wheat bread in France is higher per head than in the United Kingdom, the figures being 358 in the United Kingdom, and 486 (pounds per head per annum) in France. From the point of view of defence France is independent of sea-borne wheat. From the economic point of view that £100,000,000 worth of home-produced wheat has to be paid for by £100,000,000 worth of home-manufactured goods.

Fiscal Traditions

It is strange that this aspect of the question is not more thoroughly understood in this country. That it is not understood better is undoubtedly due to the fact that, on the one hand, the development of the foreign market so obsesses the minds of our leaders of industry that they do not realize how far more important it is to develop the home market, and on the other hand, to the fact that a large number of politicians have become so hidebound in their subserviency to so-called principles and party tradition that they refuse to consider the case on its merits. Out of very obstinacy they prefer to leave the nation labouring under adverse conditions rather than seriously to work out the problem from a scientific, and not a party point of view.

If a minimum price for wheat is conceded, it should be possible to fix a maximum price as well. This would have many advantages, it would fix the price of land, and it would remove all reason for saying that the landowner would reap undue benefit.

One word of warning with regard to this question of wheat and arable land. It is

Conclusions

not proposed to break up all our grass land. The rearing of pedigree stock is an important feature of English agriculture, though from the strictly economic point of view its importance is generally much over-rated. What is necessary is to reduce the area of grass land, say to 40 per cent. or even 45 per cent. of the total of cultivated land, and this would give 55 per cent. under the plough, instead of as at present 41 per cent., which according to the table of comparison is the lowest in Europe. An increase of about 15 per cent. in the area of our arable land would make a great difference, and render possible the alterations in our croppings suggested by Mr. Fielding in Table No. X.

* * * * *

If a careful investigation into the present condition of our food supply is to be made, if practical suggestions for its re-organization are to be put forward, then a Royal Commission should be appointed. It is generally admitted that the land could produce more. That is quite sufficient basis for demanding a Royal Commission, for the

The Party Spirit

increase of production has been shown to be of vital importance. A Royal Commission, however, appointed by our present system of Government and influenced by party politics will achieve little. Even if it makes a valuable report, the strength of party feeling will prevent its being acted upon.

Not only could our land produce more, but the most serious fact to remember is that each year it is actually producing less than the year before. Of late years our party politicians have talked about land reform; they have talked vaguely about the necessity of increasing production; they have said that the land ought to employ more people than it does at present, but they have done nothing. If the land is to produce more, if agriculture is to flourish, the right conditions must be created, but the party politician—thinking ever of votes—has not attempted to create these conditions. He has made no attempt, in the first place, to understand what the land could do if properly handled, and in the second, to teach the nation at large what the proper development of our land would mean to the Nation and to the Empire.

Conclusions

Politicians have brought in a Small Holdings Act which does not settle people on the land. They have devised a Development Commission which does little to develop anything. They have created the power to set Agricultural Credit Societies on foot, but none have been started. It has been lip service, and their heart has not been in the work of development. The land and its development is not a question for party politicians ; it is not even a question for landowners and farmers, who form but a small portion of the community ; it is a question for the Nation itself, and particularly for the working-men, whether urban or rural. The opportunities of the working classes cannot be what they should be until the land is put to its fullest use. If it is a question for the Nation, then surely the time has come for a National Party to deal with the problem, and to take it out of the hands of party politicians. Upon the labour representatives in the House of Commons lies a great responsibility. It is incumbent upon them to put aside all preconceived ideas, to banish worthless nostrums, and to deal with this great question with an

A National Party

open mind. Many of them have visited Denmark and can therefore understand what a highly organized and developed industry can do for a people. The working community, perhaps more than any other section, should be in favour of a National Party to deal with the land and the social problems depending upon it. If such a party could be formed, then indeed the work of the Royal Commission would become effective; then indeed might we hope for the formation of an Imperial Conservation Board, to guide the flow of population, investigate the sources of food supply, and to develop the natural resources of the Empire. The creation of such a Board would do much to strengthen the bonds of union between the different parts of the Empire. Indeed, it is not too much to say that if the present opportunity to develop a great national movement is lost, not only will nothing be done to improve the rural conditions, but matters will go from bad to worse until Nemesis overtakes the nation. There are many moderate and right-thinking men who feel how disastrous our present system is.

Conclusions

Are they going to stand by and allow ruin to overtake the nation for want of making sufficient effort to wipe out the evils of our party system? The present attitude of politicians towards the land and all social reforms is well summed up in the *New Statesman* of August 21st, 1915: "One party fears to create a precedent for State interference with land; the other party fears to compromise its Free Trade principles by any guarantee of a price (for wheat); while both possess a cultivated distrust for the capacity of the State to organize or order any industry with success. So a nation of which the individuals are born 'doers' develops an oriental fatalism of inaction."

To consider the Empire as a whole, this war has caused a great strengthening of the bonds between the mother country and the daughter nations, and therefore the greatest care must be taken when the war is over to obviate any danger of reaction. The financial situation will be very difficult, and there is nothing more calculated than money difficulties to strain even the most friendly feelings. If the Home Government

The Imperial Bond

does not show itself fully determined definitely to encourage and to develop economic union, serious loss to the Empire will result. There is no doubt that the Dominion Governments realize, even if the Imperial Government does not, that it is essential to concentrate attention on land settlement, and that it is also essential for the United Kingdom to produce within its own borders the maximum amount possible of food. If in achieving this object the purchase from our Dominions of certain commodities is lessened, then we must see that we make it good to them in other directions. Much of the food supply which now comes from foreign countries could come, if thought were bestowed upon the question, just as well from our own possessions. The essential is that we should study the problem of our food supply as a whole, and so reorganize that in future we shall draw our supplies of food and raw material from those sources which will most directly benefit the Empire.

This means that there must be more method in our investment of capital outside

Conclusions

the United Kingdom than there has been in the past. Capital must be used primarily for developing the Empire and its resources, rather than the resources of foreign countries. There will be very great need for patriotic finance at the end of the war, to assist in the most speedy recuperation possible.

The large increase in home-grown food, advocated in this book, would replace the food now imported from foreign countries. Except in the case of wheat our dominions would not be seriously affected; and as they develop more manufactures, there will be an increasingly large exchange between urban and agricultural products within their own boundaries. In every country this exchange of commodities is the soundest of all exchanges, and should be developed to the full. To increase our home-grown supply of food by £150,000,000 would be a great achievement—the effects would be far reaching—and every section of the community would benefit. This is surely worth attempting.

Some may say that it is useless to attempt it, because long before an increased produc-

Our Artificial Conditions

tion of £150,000,000 worth could be won from the soil, the law of Diminishing Returns would render the process unprofitable and uneconomic ; but this is not so, for we are at present so far below the danger limit, that we need only concern ourselves with the law of Increasing Returns.

Again, some people are temperamentally opposed to all creative and constructive action, because they deem it to be artificial. Nothing artificial can succeed in the long run, but it is the present conditions affecting land that are really artificial. New and carefully created conditions based on sound principles need not be artificial, indeed, if they are commercially sound, they cannot be so. The present conditions are the outcome of a public opinion that has never been sound in regard to land, that has considered it an amenity for the few, rather than a necessity for the many ; and also they are the result of legislation that has not only neglected land but has often hampered its natural development. Still others are opposed to the State taking any action to improve the condition of the people ; but our population

Conclusions

has become so large, and the circumstances of life so complicated, that the State is forced to intervene in the solution of practically every problem. This is only stating the facts. But the State can intervene in two ways, wisely or unwisely. It must either erect the fence at the top of the cliff, or perforce it will have to provide the ambulance at the bottom.

APPENDIX I

Lucerne

LUCERNE must play such a very important part in the full development of our agriculture that this appendix is added to show in detail the great advantages which this crop possesses. Providing the land is properly prepared, lucerne can be grown on almost any well-drained soil. Practically all the land south of the middle of Yorkshire and east of a central line drawn down the middle of England is well suited for growing lucerne, and there is also suitable land outside that area. The three essentials are :—

- (a) That the land shall be well drained, for lucerne does not like wet feet.
- (b) That the land shall be thoroughly clean when the lucerne is sown.
- (c) That there shall be a sufficiency of lime. This can be usually given, where the land is otherwise deficient, by a dressing of one ton of ground lime to the acre.

In most English soils the bacteria necessary for the growth of lucerne exist. Where they do not, scattering a few loads of soil from an old field of

Appendix I

lucerne will provide them. Lucerne should be sown early in May, drilled in rows about 8 ins. apart. Seed (Danish and Provence are both good) should be sown at the rate of 28 lbs. to the acre. The lucerne field may be horse hoed between the rows in autumn or early spring, when it is advisable to keep the land clean. In the first year when the lucerne is about 6 ins. high, it should be scythed over to make it stronger. After that it should be cut in such a way that never more than half the crop is allowed to flower. Three and sometimes four cuts a year will be obtained. In the second year 2 cwt. of super or 3 cwt. of basic slag to the acre should be given. Nitrate of soda should never be used upon it, and though a dressing of farmyard manure will hasten the growth in the early spring it is not necessary. If lucerne is properly handled it will last in good condition for seven years, and on ploughing up, the land will be so rich that a heavy crop of mangolds or cabbages or some other gross feeding crop can be taken without any top dressing, and then a wheat crop, and after that perhaps even a barley crop, before the nitrogen stored up in the roots of the lucerne is exhausted.

Lucerne makes excellent hay, but as a rule in England it is allowed to dry too much in the process of making, and in consequence the leaves fall off. The best way to make lucerne hay is as

Lucerne

follows. After it has been cut, and allowed to dry for two or three days according to the weather, take a good wisp and twist it strongly in the hand. If no juice can be squeezed out it is ready to go into the stack. Put first a layer of straw, about 12 ins. deep, then 3 feet of lucerne hay, then another foot of straw, and so on. The whole makes particularly good feed for home consumption, and gives excellent results when fed to milking cows. The writer knows of one 16-acre field of lucerne, which in the past three years has fed sixty-two cows, twelve calves, five horses, and three bulls, over a total period of nine weeks each summer. During this time the cows were given practically no other food.

On a good grass field, at a rental, say, of 40s. an acre, and receiving proper attention, brush harrowing, and an occasional dressing of super or basic that might be put down at an average of 5s. a year, and which would yield about ten tons of grass during the summer months, the grass consumed by the stock in the field works out at a cost of $3\frac{1}{2}d.$ a cwt. The cost of lucerne over a period of seven years works out as follows :—

Appendix I

TABLE XXV.

	Per acre.		
	£	s.	d.
Cost of preliminary ploughing and working	1	1	0
Lime	10	0	
Seed	1	1	0
4 subsequent dressings of Basic at 12s.	2	8	0
Rent and rates for 7 years at £1	7	0	0
6 autumn horse hoeings	1	10	0
Total	£13	10	0

The yield at $17\frac{1}{2}$ tons to the acre over the period of seven years would be $122\frac{1}{2}$ tons = 2450 cwt.

This works out at about $1\frac{3}{4}d.$ per cwt., and the nutritive value is also higher than grass.

Lucerne is good food not only for cows but for all stock. Farmers very generally know its value for horses and calves. But it is also most valuable for feeding sheep, and there are successful sheep breeders who summer their pedigree rams on lucerne before sending them to the September market. And in some of the western states of America pigs are fed entirely upon lucerne during the summer, and it affords by far the cheapest form of pig food that can be obtained.

Lucerne

TABLE XXVI.

EXPERIMENT IN FEEDING LUCERNE.

13 two-year-old steers, weighed on April 17th, were kept in the yard and fed as follows:—

1 cwt. lucerne P.C. = $1\frac{3}{4}d.$	On April 17 av. wt.
soiling ditto $1d.$	= 917 lbs.
3 lbs. crushed barley $1\frac{1}{2}d.$	On July 23 av. wt.
3 lbs. chopped straw $\frac{3}{4}d.$	= 1130·7 lbs.
Cost per beast per day $5d.$	Increase in 97 days
	213·6 lbs. = 2 lbs.
	per beast per day.

N.B.—The average gain for two-year-old shorthorns as recorded at Smithfield Market = 1·93 lbs. per day, but here they were fed on a full ration of concentrated food of at least 7 lbs. per day.

A few intelligent and progressive English farmers have been feeding their pigs on lucerne this summer, and thus have saved using meal which is so costly on account of the war. The most scientific way of feeding lucerne to pigs is undoubtedly to chaff it and perhaps sprinkle a little meal upon it, but it can also be cut and thrown to them without chaffing.

Many practical farmers, when they hear the use of lucerne advocated, will say that the labour of green-soiling it, *i.e.* cutting it and taking it to the beasts, will be prohibitive. Though they are accustomed to handling turnips in the winter in very

Appendix I

much the same way, they do not see how it can be done in the case of lucerne in the summer. This is really only a matter of organization. In the United States, where wages are very high, it is done extensively.

The cost of soiling, when properly organized, should be as follows: One horse and light cart and two men, total, say, 9s. 6d. per day. With this arrangement 90 beasts a day should be fed, and the cost per beast would be about $1\frac{1}{4}$ d.

APPENDIX II

Two Extracts from Australian Papers

Wheat-Growing in Queensland

(From the *Brisbane Courier*.)

“A GREAT increase has within the last few months
“taken place in the area cultivated in Queensland
“for wheat. It is too early in Queensland to ex-
“pect to concrete an estimate, as the season for
“planting is somewhat later there than across the
“border, and it has not ended yet. But that the
“area will be greatly augmented is now certain.
“Shortly after the outbreak of the war an arrange-
“ment was inaugurated by the Agricultural Depart-
“ment, under which a farmer might be advanced a
“sum up to £1 for every acre cultivated for wheat,
“and which had not grown the same crop during
“the previous year. A further concession made
“was the advance of seed wheat to any farmer,
“whether he had grown wheat on his land during
“1914 or not. Interest is charged at the rate of
“5 per cent., and the money is repayable on De-
“cember 31st, 1915. Already 47,214 bushels of

Appendix II

“seed wheat have been distributed on this plan,
“and further supplies are still being sent out.
“Partly as a result of the assistance given in this
“form the Department expected an increase of
“80,000 acres in the area under wheat, and it now
“appears that this calculation may be justified.
“The area cultivated for the same purpose last year
“was only 132,655 acres, so that the percentage of
“improvement will be more marked than anything
“which has occurred in the past. Hitherto Queens-
“land has not ranked highly as a wheat-producing
“state, and has had to import a portion of her own
“supplies. This has not been due to any lack of
“natural resources. Experiments made by the
“Department at their own farms have demonstrated
“that, under a proper system of cultivating and
“manuring, the yields in this state rank as a matter
“of quantity second to none in Australia, while
“rust has been successfully combated by means of
“selective breeding, and but little trouble is caused
“from smut. The yields already obtained by
“farmers have proved sufficiently profitable to
“encourage an extension of the industry. But the
“results attained under modern methods at the
“State experimental farms successfully demonstrate
“that the natural resources of the soil are as yet
“being exploited to but a small fraction of their
“possibilities. A striking illustration of the latter
“fact has been afforded from the Roma district.

Appendix II

“During 1913, 9000 acres, privately cultivated for wheat, produced an average of 7·44 bushels to the acre. But in the same locality the Department’s expert officers obtained an average of some 20 bushels to the acre from a manured crop which had been both manured and dry soiled. The enormous difference in the return as between 7·44 and 25·8 bushels was due to the use of the scientific methods of retaining the moisture in the ground by sufficient working of the surface and by the application of a manure supplying those constituents which the particular ground happened to lack.”

Trade and War

(From the *Australian Sun* of August 5, 1915.)

“The doctrine of Free Trade was born in dreams of universal peace. It seems likely to perish in the facts of universal war. A correspondent who wrote to this paper a day or two ago emphasized the fact that ‘through her Free Trade policy Britain has since 1870 contributed considerably over one-third of the total cost of the stupendous armaments which our enemies have.’ When the nations stand arrayed against one another in war, it is found that the free-trader has fed the resources of the protectionist foe. Apart from any debatable points which remain at issue between

Appendix II

“Mr. Hughes and the metal companies, what are
“we to think of the bland internationalism of the
“fiscal policy which allowed Germany to control
“zinc and copper? British free-traders during
“long years of careless peace were content to let
“Germans take charge of these metals, with the
“result that since the outbreak of war the chuckling
“German ring has been able to sell British metal
“to the British Government at three times the
“price asked for the same material in Germany.”

“Political and fiscal readjustments within the
“British Empire can scarcely be completed while
“the war is at its present dangerous crisis. For
“the moment, the energies of the nation are em-
“ployed to the utmost in getting men and munitions
“to the front. Having deliberately suppressed her
“military strength, Britain must now think first of
“restoring it. But old errors will be renewed if
“when the war ceases Britain has not consolidated
“her national position in a world full of enmity.
“Are we to go back to the system in which com-
“modities produced in Australia and used in Eng-
“land are exploited by Germans on the way? Is
“Britain herself to keep the gates open to the
“inrush of German goods establishing in Germany
“at Britain’s expense the industrial and financial
“reserves which are the hidden strength of the
“army? Philosophically it is untrue to say that

Appendix II

“‘he is the true cosmopolite who loves his native country best’; but industrially it is strikingly true that if trade is so cosmopolitan as to ignore patriotism, it contains the elements of ruin for its own country when nation lifts sword against nation. To take the example of metals again, one hears (and has heard for a year) the assertion, ‘If the ores went to Britain they could not be treated as cheaply as in Germany.’ It would be safer to treat them more expensively for the time being.”

“Early in the war hopes were entertained that the lost German trade would be captured by British workshops ; but we have as yet no definite sign that Britain will capture the German market in the United Kingdom itself. The alien commodity and the alien workman may continue to invade England after the war ceases, and they are far more inimical to strong nationhood than many Zeppelins. Somehow free trade has become to the Englishman a veritable fetish. With argument that comes to a full-stop at the end of his nose, he seeks to demonstrate its immediate cheapness, and forgets his nationality in order to save a penny. There are some amazing Englishmen who justify their actual preference for the foreigner by the boast that a Briton is no more to them than an alien is. That is not the policy

Appendix II

“which will induce patriotism in the units of a
“populace. Swamped by foreign labour and de-
“pendent upon it, the British nation is weakened.
“If Germany had followed that policy she would
“by now be a collapsed ruin, instead of a powerful
“organism fighting a wonderful battle, and inspired
“by recent success.”

APPENDIX III

A FEW BOOKS BEARING ON THE PRESENT CONDITION OF AGRICULTURE.

Large and Small Holdings. By Hermann Levy, Ph.D.
Translated by Ruth Kenyon. Cambridge University
Press. 1911.

Land Problems and National Welfare. Christopher
Turnor. John Lane, The Bodley Head, London.

The Land and the People. The *Times* Series. John
Murray, Albemarle Street, London, W.

Land Reform. The Right Hon. Jesse Collings, M.P.
Longmans, Green and Co., 39, Paternoster Row, London.

Our English Land Muddle. An Australian view.
Frank Fox. Thomas Nelson and Sons.

Folk of the Furrow. Christopher Holdenby. Smith,
Elder & Co., 15, Waterloo Place, London. 1913.

English Farming, Past and Present. Rowland E.
Prothero. Longmans, Green and Co., 39, Paternoster
Row, London. 1912.

The Rural Life Problem of the United States. Sir
Horace Plunkett. The Macmillan Company. 1910.

Appendix III

BOOKS TO BE REFERRED TO.

(By H. W. Wolff, published by P. S. King and Son.)

People's Bank. Price 6s.

Co-operative Banking: Its Principles and Practice.
With chapter on "Co-operative Mortgage Credit."
Price 7s. 6d.

A Co-operative Credit Handbook. Price 1s.

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the rich may do to help them. Price 6d.

Co-operative Credit Banks. Price 6d.

Report on Agricultural Credit and Agricultural Co-
operation in Germany. Cd. 6626. By J. R. Cahill.
(Wyman and Sons. Price 5s.)

The Co-operative People's Banks. By Alphonse
Desjardins (Division of Remedial Loans), Russell Sage
Foundation, 130, East 22nd Street, New York City.
Price 15 cents.

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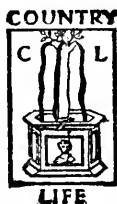
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